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Chemical Engineering

MID-NOVEMBER 1957

1957

new

Inventory...
Chemical Engineering
AWARDS

Inventory...
26th Exposition and
CHEM SHOW

Inventory...
**PLANTS
CHEMICALS
EQUIPMENT**

INVENTORY ISSUE

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CE's 1957 INVENTORY ISSUE

JOHN R. CALLAHAM, Editor-in-Chief

Permanent Reference—IV

Here again is your annual Inventory Issue. The one and only inventory of new developments in plants, chemicals and equipment comes to you with important plus features this year.

Your 13th issue of Chemical Engineering records two noteworthy biennial events—the Chemical Engineering Awards and the Chemical Exposition.

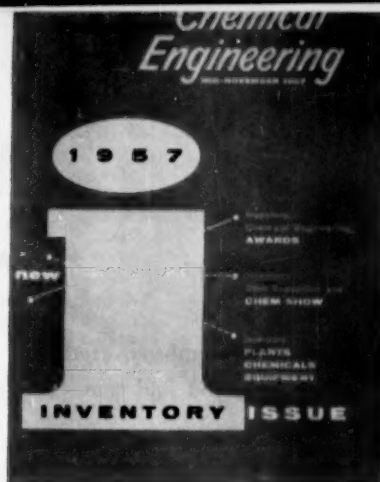
The CE Award, for the first time in more than ten years, is a multiple recognition. 77 companies share the spotlight for chemical engineering achievement. Their contributions, too, are inventoried.

Biennial Chem Show is expected to attract 60,000 visitors. When you come, your inventory will have introduced you to the four floors of New York's Coliseum. Afterward, your inventories of exhibitors and products will be on hand in the year to come to recall for you the materials and equipment you saw.

Our annual inventories of new developments in plants, commercial chemicals and processing equipment are records of progress. They help you solve tomorrow's problems. Your 1957 inventory spans developments reported in 13 months: August 1956—August 1957.

A new inventory of employment facts and opportunities is another plus feature for all.

Your expanded Inventory Issue adds to and supplements previous inventories. As you seek and get help from it during the coming year, it'll truly become your Permanent Reference—IV.



GUIDED TOUR

Annual Inventory Issue again records new developments for you

Your inventory of newsworthy developments leads off with two new features. Recognition such as this should be accorded to these two events of nationwide importance. Inventoried for the record and for your information and use are the Chemical Engineering Achievement Award and the 26th Chemical Exposition.

1957's new plants and facilities

Construction and expansion in the chemical process industries continues at rapid rate. Projects announced, building and built could be your future markets; future sources of materials.

1957's new commercial chemicals

From A to Z, your inventory of newest chemicals of commerce records reported

Chemical

GUIDED TOUR



developments during the 13 months covered by this inventory. It'll help you find something you may have missed.



All about 1957 process equipment

To help you remember and find new equipment that has been announced recently, your inventory lists 420 newsworthy developments. All are of commercial significance to chemical engineers.



To rejuvenate your data files

Nearly 3,500 different items of literature are listed in this issue. They're available to you free from manufacturers who want to help you keep your data files up-to-date and in working order.



All about the job outlook

New feature of this issue is an inventory of job opportunities. An appraisal of the 1958 prospects gives you a preview of what the employment picture will look like in the months ahead.

CE is edited for the engineer concerned with chemical operations, whatever his function . . . administration, production and plant operations, design and construction, research and development, sales and purchasing. More engineers subscribe to CE than to any other magazine in the field. Print order of this issue:

47,101

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Symbol of a bright future

This distinguished award marks another
forward step in scientific achievement

URANIUM . . . zirconium . . . titanium . . . these are some of the exciting metals of the atomic age. They represent a new era in metallurgy—the use of chemical engineering techniques to separate metals from their ores.

For their work in extractive metallurgy, a number of companies received the 1957 Award for Chemical Engineering Achievement. Three operations of Union Carbide were cited: Electro Metallurgical Company for titanium, Union

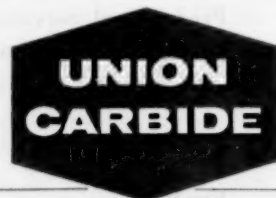
Carbide Nuclear Company for uranium, and Oak Ridge National Laboratories (operated by Union Carbide) for uranium and zirconium.

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The Awards

FOR CHEMICAL ENGINEERING ACHIEVEMENT

An Inventory of Industrial Progress

ACHIEVEMENT, in broadest definition, is valiant accomplishment. Chemical engineering, similarly defined, is the application of the sciences of chemistry, physics and mathematics to the manufacturing processes of industry. So chemical engineering achievement can refer only to the successful solution of a major industrial problem in which many scientific talents and engineering forces have been applied. Thus it becomes the composite result of group effort, of the welding together of individual abilities and accomplishments into a coordinated program directed toward a single objective — industrial progress.

To recognize such outstanding achievements and to encourage chemical engineers to participate broadly in all of the affairs of the process industries, the editors of *Chemical Engineering* in 1933 conceived the idea of a unique Award for Chemical Engineering Achievement. Since then fourteen Awards have been made, eleven to individual companies and three to broader groups — the American Synthetic Rubber Industry in 1943, the Atomic Bomb Project in 1946, and now in 1957 to those organizations in industry and government that have done the most to apply chemical principles and processes in the extractive metallurgy of the Atomic Age metals. The distinguished records of the recipients of all these Awards are chronicled in the following pages. We present them as an "Inventory of Industrial Progress" in which chemical engineers are proud to have played an important part.

SIDNEY D. KIRKPATRICK
Secretary, Committee of Award

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"The Committee of Award shall consist of the heads of chemical engineering in all of the educational institutions of the United States, whose courses have been accredited by the American Institute of Chemical Engineers and the Engineers' Council for Professional Development."



AN AWARD

for

Chemical Engineering Achievement

to

**Chemical and Metallurgical Companies
Research and Engineering Organizations**

*For meritorious contributions to the extractive
metallurgy of the Atomic Age, particularly for
research, development and efficient application
of chemical engineering principles and processes
in the recovery of metals vital alike to the
national security and civilian economy*



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CHEMICAL ENGINEERING

DECEMBER 3, 1957

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Then and Now: Primitive ore processing pictured in Georg Agricola's "De re metallica" in 1556 contrast strikingly with modern chemical engineering operations in this new uranium processing mill at Moab, Utah.

HOW CHEMICAL ENGINEERING IS REPAYING ITS HISTORIC DEBT TO EXTRACTIVE METALLURGY

SIDNEY D. KIRKPATRICK • Editorial Director, *Chemical Engineering* and *Chemical Week*

IN ONE OF HIS CLASSIC ESSAYS ON the engineering profession, the late John Hays Hammond, eminent mining engineer, wrote these prophetic sentences:

"Chemical engineering more than any other may be called the engineering of the future. It is the result of an evolution in which most of the other branches have played a part. Chemistry was first introduced into engineering in mining though it was not recognized as such . . ."

Many of the unit operations of modern chemical engineering had their origin in the primitive methods and equipment with which the miners of Agricola's day crudely extracted metals from their ores. The accumulated experience of many succeeding generations is reflected in what we have since learned about crushing and grinding, flotation and sedimentation, roasting, leaching, filtration and crystallization. But only

now is chemical engineering, in the fiftieth year of its formal organization, beginning to repay the tremendous debt it owes to extractive metallurgy.

This oldest yet in many ways newest frontier of technology embraces all the physical and chemical steps from mineral and ore processing to the recovery, refining and purification of metals and their compounds. Physical metallurgy, on the other hand, is concerned mostly with the alloying, fabrication and application of these metals.

As the government has slowly removed the shrouds of secrecy surrounding uranium and other Atomic Age metals and metal compounds, it is apparent that another evolution—more accurately a revolution—has been taking place in this age-old industry. The classical techniques of ore processing are being supplemented—sometimes supplanted—by such chemical engineering opera-

tions as ion exchange, liquid-liquid and solid-liquid contacting, chemical precipitation, chromatography, —even gaseous diffusion. The steadily widening use of "chemical" metallurgy has been hailed recently as one of the most important developments in the entire history of the mining industry. (*Eng. Mining Journal*, Mid-June 1957, p. 118.)

Yet few people realize that it was aluminum rather than uranium or zirconium that first broke with metallurgical tradition. Instead of smelting an ore to divide its impurities between an impure metal and an often valuable slag, the aluminum pioneers used quantitative chemical methods to prepare pure alumina from an impure bauxite as the first step in their reduction process. Similar paths have been followed to yield purer tin, nickel and titanium from metal sources that might otherwise have remained completely useless. No one is quite willing to

guess where or how far this trend will go.

Perhaps even steel will some day become a chemical-engineering enterprise. As richer iron ores are being depleted, huge new taconite plants are already supplying a sizable proportion of the nation's needs,—using what are essentially chemical engineering operations—crushing and grinding, cyclone and hydro separations, thickening, filtration, agglomeration, nodulizing, coal coating and pelletizing. And there are even some hardy souls in the iron and steel industry who are willing to back with millions of dollars their bets that direct hydrogen reduction of iron ore will ultimately displace the blast furnace!

But it was the less common metals of the Atomic Age that have attracted attention and study by the 1957 Committee of Award for Chemical Engineering Achievement. Their contributions, not only to nuclear enterprises but also to vitally important developments in high-energy fuels and propellants are shaping an entirely new technology. With this in mind these senior chemical engineering educators have approved the award winning nominations of more than 75 chemical and metallurgical companies, research institutions and engineering organizations in industry and government. These are now being honored for applying chemical engineering principles and processes in the extractive metallurgy of uranium and plutonium, zirconium and hafnium, tantalum and columbium, lithium, boron, beryllium, thorium and the rare-earth metals. Also included, since they are primarily products of "chemical" metallurgy as well as important to the nuclear industry, are the three "older" metals, aluminum, nickel and titanium.

The Award-winning organizations, listed on following pages, report the employment of more than 1,800 chemical engineers, whose work has been responsible for the investment of almost \$4 billion in plants and equipment. An independent estimate (*Chem Eng*, June 1957, pp. 200-2) points to an annual market of \$60 to \$65 million for chemicals to process 200 million tons of nonferrous minerals and ores. And this is but an encouraging beginning.

Space is not available here nor is

the writer competent to present and review the detailed flowsheets of all of these important developments in chemical metallurgy. But since more than half of the committee's citations refer to uranium, a brief resume of its recent history may not be out of order.

The latest semi-annual report of the U. S. Atomic Energy Commission estimates uranium ore reserves in the United States at approximately 67 million tons, containing about 174,000 tons of uranium oxide. The average grade of these reserves is about 0.26 percent uranium oxide or 5.2 lb. of uranium oxide per ton of ore. Present ore production of 3.5 million tons is expected to double in the next ten years. These ores are being processed today in 12 uranium plants of which all except one at Monticello, Utah, are privately

owned and operated. At least ten additional plants are under construction or contract. (See accompanying table supplied by the Grand Junction, Colo., operating office of A.E.C.)

In order of their commercial development and application, the principal chemical engineering techniques used in uranium ore processing are chemical precipitation, column ion exchange, resin-in-pulp (RIP) ion exchange for slimy ores and liquid-liquid extraction with organic solvents.

ENTER ION EXCHANGE

Almost exactly ten years ago the Atomic Energy Commission approached the American chemical industry with the request that it assist its Oak Ridge and M.I.T. Raw Materials laboratories in a research

COST AND CAPACITY OF URANIUM PROCESSING PLANTS

With the exception of the government-owned uranium mill at Monticello, Utah, all uranium processing plants are owned and operated by private industry under individually-negotiated contracts whereby the USAEC is the purchaser of the uranium concentrate. The privately-owned mills also are licensed to purchase uranium-bearing ores from producers. A list of the mills follows:

Operating as of May 15, 1957:

Location	Company	Tons per Day of Ore	Estimated Cost of Mill
1. Rifle, Colo.	Union Carbide Nuclear Co.	280	\$1,600,000
2. Uravan, Colo.	Union Carbide Nuclear Co.	1,100	5,000,000
3. Durango, Colo.	Vanadium Corp. of America	430	813,000
4. Naturita, Colo.	Vanadium Corp. of America	350	1,000,000
5. Grand Jct., Colo.	Climax Uranium Co.	350	3,088,000
6. Shiprock, N. M.	Kerr-McGee Oil Industries	500	3,161,000
7. Grants, N. M.	Anaconda Company	3,000	19,358,000
8. Salt Lake City	Vitro Uranium Co.	550	5,500,000
9. Monticello, Utah	Government-owned	600	5,000,000
10. Edgemont, S. D.	Mines Development, Inc.	300	1,900,000
11. Tuba City, Ariz.	Rare Metals Corp. of America	250	3,600,000
12. Moab, Utah	Uranium Reduction Co.	1,500	8,250,000
Sub totals		9,210	\$58,270,000

Mills under construction or contracted:

1. Bedrock, Colo.	Atomic Fuel Extraction Corp.	200	\$2,072,000
2. Mexican Hat, Utah	Texas-Zinc Minerals Co.	775	7,000,000
3. Ford, Wash.	Dawn Mining Co.	400	3,100,000
4. Split Rock, Wyo.	Western Nuclear Corp.	400	3,600,000*
5. Rifle, Colo.	Union Carbide Nuclear Co.	1,000	8,500,000*
6. Maybell, Colo.	Trace Elements Corp.	300	2,208,000
7. Gunnison, Colo.	Gunnison Mining Co.	200	2,025,000
8. Fremont Co., Wyo.	Lucky Mc Uranium Corp.	750	6,900,000
9. Grants, N. M.	Homestake-New Mexico Partners	750	5,325,000
10. Grants, N. M.	Homestake-Sapin Partners	1,500	9,000,000
11. Grants, N. M.	Kermac Nuclear Fuels Corp.	3,300	16,000,000
Sub totals		9,575	\$65,730,000

Recap:

12 mills operating	9,210	\$58,270,000
11 under construction or contracted	9,575	\$65,730,000

GRAND TOTAL 18,785 \$124,000,000

*New Union Carbide mill at Rifle, Colo., will replace one now operating.

1957 AWARD WINNERS

Allied Chemical & Dye Corp.
New York, N. Y.
Uranium (General Chemical Division)
Titanium (Allied-Kennecott Titanium Corp.)

Aluminum Co. of America
Pittsburgh, Pa.
Aluminum

American Cyanamid Co.
New York, N. Y.
Uranium

American Potash & Chemical Co.
Los Angeles, Calif.
Lithium and Boron

Ames Laboratory, U.S.A.E.C.
Ames, Iowa
Uranium, Thorium and Rare Earths

Anaconda Co.
New York, N. Y.
Uranium

Argonne National Laboratory
(University of Chicago, contractor)
Lemont, Ill.
Uranium and Zirconium

Battelle Memorial Institute
Columbus, Ohio
Uranium and Titanium

Beryllium Corp. of America
Reading, Pa.
Beryllium

Blaw-Knox Co.
Pittsburgh, Pa.
Uranium; other Nuclear Metals

Blockson Chemical Co.
Joliet, Illinois
Uranium

Brookhaven National Laboratory
(Associated Universities, Inc. contractor)
Upton, L. I., New York
Uranium

Brush Beryllium Co.
Cleveland, Ohio
Beryllium

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Callery, Pa.
Boron

Carborundum Metals Co., The
Akron, N. Y.
Zirconium

Catalytic Construction Co.
Philadelphia, Pa.
Uranium and Zirconium

Chemical Construction Corp.
New York, N. Y.
Uranium and Nickel

Climax Uranium Co.
Grand Junction, Colorado
Uranium

Columbia-National Corp.
Cambridge, Mass.
Zirconium and Hafnium

Columbia-Southern Chemical Corp.
Pittsburgh, Pa.
Titanium

Crane Co.
Chicago, Illinois
Titanium - Cramet (with Republic Steel Co.)
Thorium & Rare Earths - Heavy Minerals Co., Inc., (with Vitro Corp. of America)

Dorr-Oliver, Inc.
Stamford, Conn.
Uranium; other Nuclear Metals

Dow Chemical Co., The
Midland, Michigan
Uranium and Titanium

E. I. duPont de Nemours & Co., Inc.
Wilmington, Delaware
Plutonium and Titanium

Electro Metallurgical Co. (Div. Union Carbide Corp.)
New York, N. Y.
Titanium

Fansteel Metallurgical Corp.
North Chicago, Illinois
Tantalum and Columbium

Foot Mineral Co.
Philadelphia, Pa.
Zirconium and Lithium

Freeport Sulphur Co.
New York, N. Y.
Nickel

General Electric Co.
Schenectady, N. Y.
Uranium and Plutonium

Goodyear Atomic Corp. (Div. The Goodyear Tire and Rubber Co.)
Akron, Ohio
Uranium

W. R. Grace Co.
New York, N. Y.
Rare Earths

Harshaw Chemical Co., The
Cleveland, Ohio
Uranium

Hooker Electrochemical Co.
Niagara Falls, N. Y.
Boron

Horizons, Inc.
Cleveland, Ohio
Thorium

International Minerals & Chemical Corp.
Chicago, Illinois
Uranium

International Nickel Co. of Canada, Ltd.
Copper Cliff, Ont.
Nickel

program to recover uranium from low grade ores such as the Florida phosphate rock used in manufacturing wet-process phosphoric acid. An ion-exchange method seemed to offer most promise for recovering the 0.008 to 0.02 percent U_3O_8 contained in these sources. Eventually a pilot plant was built to operate with an anion exchange resin in a semi-countercurrent manner.

The pilot plant was operated for about a year but with very discouraging results. The low yields were in striking contrast with the efficient recovery obtained from the richer carnotite ores and the gold residues being worked in South Africa for

their uranium content. So the Florida project was abandoned — but not the ion-exchange process. In the past five years approximately 50 ion-exchange plants have gone into operation on the Colorado Plateau, in the Canadian Blind River area, in South Africa and Australia.

THEN CAME SOLVENT EXTRACTION

Indirectly, the disappointment in Florida led to the most exciting development of the uranium program. Since the uranium there existed in a phosphate complex, the chemical industry researchers reasoned that it might be possible to discover an organic phosphate compound that

would form a soluble complex with the metal and that the resulting solution might be immiscible with water. Subsequent studies showed that certain mono- and di-alkyl orthophosphates dissolved in kerosene would selectively extract uranium from other contaminating metals and that the uranium might be readily released with HCl or HF.

In a relatively short time the solvent-extraction process was being used for uranium recovery in three wet-phosphoric-acid plants in Florida. Thus encouraged, industry and government research soon developed a whole family of phosphoric acid esters of long-chain alcohols — each

Kaiser Aluminum & Chemical Corp.
Oakland, California
Aluminum

Kawecki Chemical Co.
Boyertown, Pa.
Tantalum and Columbium

Kennametal Inc.
Latrobe, Pa.
Tantalum and Columbium

Kerr-McGee Oil Industries, Inc.
Oklahoma City, Okla.
Uranium

Knowles Associates
New York, N. Y.
Uranium; other Nuclear Metals

Lindsay Chemical Co.
West Chicago, Illinois
Thorium and Rare Earths

Lithium Corp. of America
Minneapolis, Minn.
Lithium

Arthur D. Little, Inc.
Cambridge, Mass.
Uranium

Los Alamos Scientific Laboratory
(University of California,
contractor)
Los Alamos, New Mexico
Uranium and Plutonium

Mallinckrodt Chemical Works
St. Louis, Mo.
Uranium

Maywood Chemical Works
Maywood, N. J.
Thorium and Lithium

Metal Hydrides, Inc.
Uranium and Zirconium

Mines Development, Inc.
Edgemont, S. D.
Uranium

National Research Corp.
Cambridge, Mass.
Titanium

National Lead Co.
New York, N. Y.
Uranium, Zirconium, Nickel

Nuclear Metals, Inc.
Cambridge, Mass.
Beryllium

**Oak Ridge Laboratories (of Union
Carbide Nuclear Co.)**
Oak Ridge, Tenn.
Uranium and Zirconium

Olin Mathieson Chemical Corp.
New York, N. Y.
Boron

Permutit Co., The
New York, N. Y.
Uranium

Phillips Petroleum Co.
Bartlesville, Okla.
Uranium

Quebec Iron and Titanium Corp.
New York, N. Y.
Titanium

Reynolds Metals Co.
Richmond, Va.
Aluminum

Rohm and Haas Co.
Philadelphia, Pa.
Uranium

Rust Engineering Co.
Pittsburgh, Pa.
Uranium; other Nuclear Metals

Sherritt-Gordon Mines, Ltd.
Toronto, Canada
Nickel

Singmaster and Breyer
New York, N. Y.
Uranium; other Nuclear Metals

Stanford Research Institute
Menlo Park, California
Uranium and Boron

Stauffer Chemical Co.
New York, N. Y.
Boron and Titanium

Stearns-Roger Manufacturing Co.
Uranium; other Nuclear Metals

Titanium Metals Corp. of America
New York, N. Y.
Titanium

Union Carbide Nuclear Co.
New York, N. Y.
Uranium

**United States Borax and Chemical
Corp.**
Los Angeles, Calif.
Boron

U. S. Bureau of Mines
Washington, D. C.
Uranium, Titanium, Zirconium

**U. S. Industrial Chemicals Div.,
National Distillers and Chemical Corp.**
New York, N. Y.
Zirconium and Titanium

**U. S. Phosphoric Products Div.,
Tennessee Corporation**
New York, N. Y.
Uranium

Uranium Reduction Co.
Moab, Utah
Uranium

Vanadium Corp. of America
New York, N. Y.
Uranium

Virginia-Carolina Chemical Co.
Richmond, Va.
Uranium

Vitro Corp. of America
New York, N. Y.
Uranium

Wah Chang Corp.
New York, N. Y.
Zirconium, Hafnium, Columbium

Westinghouse Electric Corp.
Pittsburgh, Pa.
Uranium and Zirconium

with different advantages and disadvantages. Another group turned to the long-chain amines and came forth with an equally interesting series of new uranium extractives. Today solvent-extraction processes are in commercial use in at least four

plants on the Colorado Plateau and several others are being built in the United States and Canada.

Ion exchange and solvent extraction are today responsible for the production of 80 percent of all the free-world's uranium and at a cost

of about half of what it was ten years ago. In total this represents savings of hundreds of millions of dollars. And that this is only the beginning has been indicated by Director Jesse C. Johnson of the AEC Raw Materials Division who is confident that the solvent-extraction process will find equally profitable application in the recovery of many other important metals of the Atomic Age.

Thus, in a considerable measure, we are repaying our historic debt to our mining and metallurgical colleagues. Perhaps by joining with them we can all find our place in John Hays Hammond's "engineering of the future."

AN HISTORY-MAKING REVOLUTION

Unbeknownst to many chemical engineers a quiet revolution is under-way in extractive metallurgy. Applications of chemical engineering principles and processes are creating new industries and realigning corporate and competitive relations among older chemical and metallurgical companies. The resulting upsurge of new metals and materials has been hailed as the most important development in the entire history of mining and metallurgy.

An Inventory of Previous Awards

FOR CHEMICAL ENGINEERING ACHIEVEMENT, 1933-1955

1933 Carbide & Carbon Chemicals Corp.

The original award was made for producing commercially a large number of synthetic organic chemicals from petroleum and natural gas.

1935 E. I. du Pont de Nemours & Co. — Organic Chemicals Dept.

For the successful industrial development of neoprene, synthetic camphor and certain other important chemicals and dyestuffs.

1937 Monsanto Chemical Co.

For developing the large-scale production and utilization of elemental phosphorus.

1939 Standard Oil Development Co.

For new chemical engineering processes and equipment to make available superfuels for aviation, as well as other valuable products synthesized from the hydrocarbons of petroleum.

1941 The Dow Chemical Co.

For the recovery from seawater of magnesium metal then sorely needed for aircraft and munitions.

1943 American Synthetic Rubber Industry

67 companies were honored for crowding into 24 months a project that in normal times would have required many years — a miracle of chemical engineering planning and construction.

1946 The Atomic Bomb Project

Awarded to 122 companies, universities and re-

search organizations for contributing as prime contractors so significantly to the research and engineering responsible for this war-ending achievement.

1947 Merck & Co.

For successful pioneering in the large-scale production of streptomycin and other vital medicinals and, in a broader sense, for service to humanity.

1948 Shell Development Co.

For the successful synthesis of glycerine from petroleum for the first time on a commercial scale.

1949 Celanese Corp. of America

For the chemical engineering integration of its textile, plastics and chemical operations.

1951 Phillips Petroleum Co.

For pioneering development of high-abrasion carbon blacks, and major contributions to the success of cold rubber.

1953 Carbide & Carbon Chemicals Co.

For research and pilot-plant production of certain aromatic chemicals directly from coal by high-pressure catalytic hydrogenation.

1955 Dow Corning Corp.

For the participation of its chemical engineers in all phases of the successful commercial development of silicone products.

1933 CARBIDE AND CARBON CHEMICALS CORPORATION

Here was indeed a happy choice for this first Award for Chemical Engineering Achievement. Here was a young and vigorous enterprise, based on typically American research, aggressively applied by a resourceful, engineering-minded management. Here was the first large-scale, integrated effort to build a diversified chemical industry from the hydrocarbons of petroleum and natural gas.

From a few new chemicals, we hopefully called "children of the depression," have come more than three hundred commercially important synthetic organic chemicals. Lately it's been at the rate of two a month! Many, if not most of these products, were comparatively unknown laboratory curiosities when the first Award Committee honored this hardy petrochemical pioneer.

Blaine Island in the Kanawha River at South Charleston, West Virginia, is the heart of the great empire now known as Union Carbide Chemicals Co. Here is what Blaine Island looked like in 1933 as contrasted with its appearance now.



1935 E. I. duPONT deNEMOURS & CO., INC. Organic Chemicals Department

The successful industrial development of the first entirely new synthetic rubber, neoprene, was recognized by the second Award. From a little operating unit in the great DuPont works at Deepwater, New Jersey, this lusty infant has grown to occupy its own huge plants at Louisville, Ky. and Montague, Mich. During the war it made a vital contribution to the national defense. Today it serves literally hundreds of industrial and human needs.

An interesting example of one way in which chemical engineers have contributed to neoprene's remarkable growth will be seen in these illustrations. One shows how the 1935 operator used alcohol from a garden hose to wash out the incompletely polymerized material from the mass-polymerized neoprene. Today, in contrast, the material is polymerized in water emulsion, coagulated on a chilled roll, the resultant film is automatically washed with warm water and then dried in a festoon dryer.

How modern chemical engineering has improved the production of the synthetic rubber, neoprene.



1937 MONSANTO CHEMICAL COMPANY

Twenty years ago the Award recognized an exemplary application of chemical engineering that was to open up an entirely new field for chemical industry. Elemental phosphorus, produced for the first time in tank-car quantities, has since become the basis for many new organic as well as inorganic derivatives of that remarkable element the ancient alchemists called *phosphorous mirabilis* — miraculous bearer of light. As the industry has grown, so has this pioneer producer. Today, with its two huge electric-furnace plants in Tennessee and Idaho, Monsanto is the world's largest maker of elemental phosphorus.

Here are two pictures, one taken at Monsanto, Tenn., November 10, 1936, and the other at approximately the same location twenty years later. The modern view shows how the "red earth" mined in nearby Tennessee is carried to the mouths of the six mammoth furnaces, which in turn discharge their molten phosphorus into the nearby tank-cars or storage tanks. Furnace No. 5 — rated at over 45,000 KVA — is reputed to have the highest capacity in the world.

From these beginnings (top) twenty years ago has come one of the world's largest electric furnace plants (bottom) for the production of elemental phosphorus.



1939 STANDARD OIL DEVELOPMENT COMPANY

The fourth Award was the first to recognize developments outside of strictly chemical industries. In its citation of the organization, now known as Esso Research and Engineering Co., the committee stressed the successful production of new aviation fuels and "certain synthetic chemical products from petroleum."

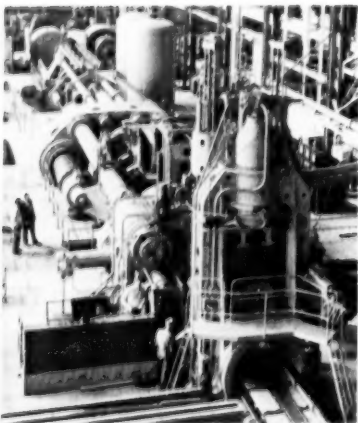
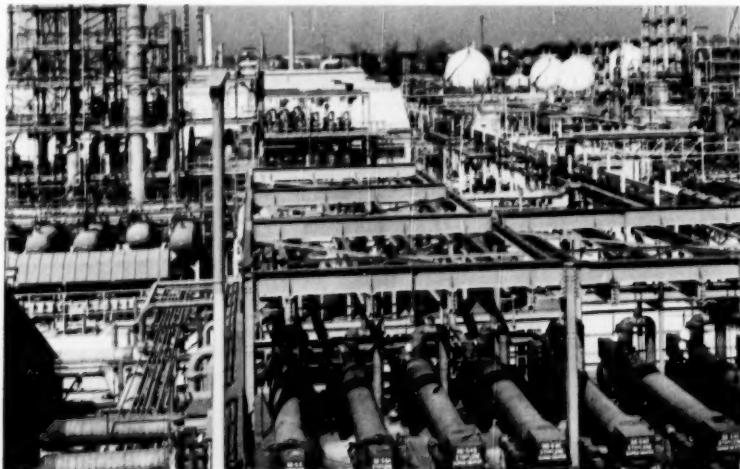
For security and other reasons that seemed important in 1939, we were not permitted to say that the most important of those "certain synthetic chemical products" was butyl, the unique synthetic rubber made from iso-

butylene and isoprene. A few years later its great war-time contributions were recognized in the 1943 group Award. Since then its many civilian as well as military applications have required the output of two huge plants at Baton Rouge, La., and Baytown, Texas, another in Sarnia, Ontario. Several licenses have recently been issued here and abroad. In all more than \$13 million has been spent on the research and development of butyl rubber — one of the many petrochemical products of the 1939 Award recipient.

In October 1939 this first large-scale pilot plant at Linden, New Jersey, turned out about 100 lb. per day of butyl rubber.



This butyl-rubber plant at Baton Rouge, La., is one of three huge installations to use the continuous polymerization processes developed from Esso research.

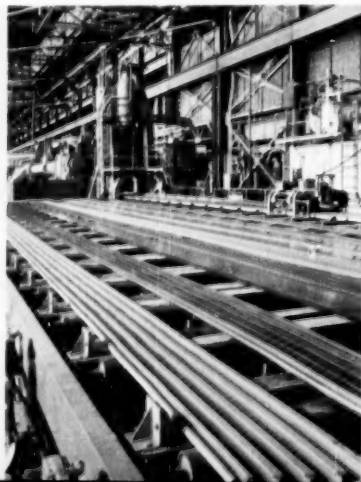


World's largest magnesium press will extrude longer, larger extrusions than ever before available.

Typical of strong light-weight sections the new press will produce are these bases for a portable landing mat being tested by U. S. Corps of Engineers.

1941 THE DOW CHEMICAL COMPANY

Five days before Pearl Harbor it was our privilege to present the fifth Chemical Engineering Achievement Award to an organization that had made a really great contribution to the national defense — "the recovery from the sea of magnesium metal so sorely needed for aircraft and munition." Dow's productive research and courageous development at Freeport, Texas, was but the beginning of a tremendous program to meet the ever mounting requirements of a people under arms.



With the peace came problems for the magnesium industry. To beat its swords into plowshares for a new and almost non-existent market, required equally great courage and resources. Perhaps the most impressive evidence of the success of Dow's program is to be seen in these views of the world's largest magnesium mill for rolling strip, sheet and plates and pushing out 80 ft. extrusions from a 2800-ton press. Contrast all this with the hand lading operations of the precious metal we proudly hailed in 1941!

1943 AMERICAN SYNTHETIC RUBBER INDUSTRY

America's synthetic rubber program was widely hailed as one of the most important chemical engineering undertakings in the early days of the war. To have crowded into twenty-four months a project that in normal times would have required a dozen years was in itself a miracle

of engineering planning and construction. To recognize the organizations responsible for these great achievements, the Committee conferred its first Group Award on these sixty-seven chemical, rubber and petroleum companies.

American Cyanamid Co. New York, New York	Ford, Bacon & Davis, Inc. New York, New York	Polymer Corporation, Ltd. Toronto, Canada
E. B. Badger and Sons Co. Boston, Massachusetts	General Tire and Rubber Co. Akron, Ohio	Quaker Oats Co. Chicago, Illinois
Barium Reduction Co. South Charleston, West Virginia	Girdler Corporation Louisville, Kentucky	Rohm and Haas Philadelphia, Pennsylvania
Bell Telephone Laboratories New York, New York	B. F. Goodrich Co. Akron, Ohio	Sharples Chemical Co. Philadelphia, Pennsylvania
Bigler Chemical Co. Philadelphia, Pennsylvania	Goodyear Tire & Rubber Co. Akron, Ohio	Shell Chemical Co. San Francisco, California
Blaw-Knox Co. Pittsburgh, Pennsylvania	Harshaw Chemical Co. Cleveland, Ohio	Shell Development Co. Emeryville, California
C. F. Braun and Co. Los Angeles, California	Hercules Powder Co. Wilmington, Delaware	Sinclair Rubber Co. Houston, Texas
Buffalo Electrochemical Co. Buffalo, New York	Hooker Electrochemical Co. Niagara Falls, New York	Southern California Gas Co. Los Angeles, California
Canton Refining Co. Canton, Ohio	Houdry Process Corp. Wilmington, Delaware	Stanco Distributors New York, New York
Carbide and Carbon Chemicals Corp. New York, New York	Humble Oil and Refining Co. Houston, Texas	Standard Oil Co. of California San Francisco, California
Catalytic Development Co. Philadelphia, Pennsylvania	Hycar Chemical Co. Akron, Ohio	Standard Oil Co. of Indiana Chicago, Illinois
Celanese Corp. of America New York, New York	M. W. Kellogg Co. New York, New York	Standard Oil Co. of Louisiana Baton Rouge, Louisiana
Cities Service Refining Co. New York, New York	Koppers United Co. Pittsburgh, Pennsylvania	Standard Oil Development Co. New York, New York
Copolymer Corporation Baton Rouge, Louisiana	Lion Oil and Refining Co. El Dorado, Arkansas	Stone and Webster Engineering Corp. New York, New York
Davison Chemical Co. Baltimore, Maryland	Lummus Company New York, New York	Sun Oil Co. Philadelphia, Pennsylvania
Dewey & Almy Chemical Co. Cambridge, Massachusetts	Monsanto Chemical Co. St. Louis, Missouri	Taylor Refining Co. Corpus Christi, Texas
Dow Chemical Co. Midland, Michigan	National Carbide Co. New York, New York	Thiokol Corp. Trenton, New Jersey
E. I. du Pont de Nemours & Co. Wilmington, Delaware	National Synthetic Rubber Corp. Buffalo, New York	United Gas Improvement Co. Philadelphia, Pennsylvania
Eastern States Petroleum & Refining Co. Houston, Texas	Neches Butane Products Co. Port Neches, Texas	United States Rubber Co. New York, New York
Ethyl Corporation New York, New York	Newport Industries Pensacola, Florida	Universal Oil Products Co. Chicago, Illinois
Filtros, Inc. Rochester, New York	Petroleum Conversion Co. Elizabeth, New Jersey	Westvaco Chlorine Products Corp. New York, New York
Firestone Tire & Rubber Co. Akron, Ohio	Phillips Petroleum Co. Bartlesville, Oklahoma	

1946 THE ATOMIC BOMB PROJECT

Because the Atomic Bomb Project so well exemplified the sort of group effort for which the Award for Chemical Engineering Achievement was established, the Committee voted unanimously to present the seventh Award to the Manhattan District of the United States Engineer

Corps and through it to those companies, universities, and research organizations, that as prime contractors, contributed so significantly to the scientific research and engineering that were responsible for the success of this war-ending achievement.

Allis-Chalmers Manufacturing Company Milwaukee, Wisconsin	L. K. Comstock & Company, Inc. New York, New York	General Electric Company Schenectady, New York
Aluminum Company of America Pittsburgh, Pennsylvania	Cook Electric Company Chicago, Illinois	The Girdler Corporation Louisville, Kentucky
American Cyanamid Company New York, New York	Crane Company Chicago, Illinois	Grayson Heat Control, Ltd. Lynwood, California
Babcock & Wilcox Company New York, New York	Distillation Products, Inc. Rochester, New York	Grinnell Corporation Providence, Rhode Island
Bakelite Corporation New York, New York	Eastman Kodak Company Rochester, New York and Tennessee Eastman Corporation Kingsport, Tennessee	Handy & Harman, Inc. New York, New York
E. B. Badger & Sons Company Boston, Massachusetts	E. I. du Pont de Nemours & Company, Inc. Wilmington, Delaware	Hanley & Company Chicago, Illinois
Bart Manufacturing Company Belleville, New Jersey	Electro Metallurgical Company New York, New York	Harshaw Chemical Co. Cleveland, Ohio
Baker & Company, Inc. Newark, New Jersey	Fansteel Metallurgical Corporation North Chicago, Illinois	Hooker Electrochemical Company Niagara Falls, New York
Beach-Russ Company New York, New York	Fercleve Corporation and The H. K. Ferguson Company, Inc. Cleveland, Ohio	Houdaille-Hershey Corporation Detroit, Michigan
Bell Telephone Laboratories, Inc. New York, New York	Fisher Governor Company Marshalltown, Iowa	International Nickel Company, Inc. New York, New York
Brush Beryllium Company Cleveland, Ohio	The Fluor Corporation, Ltd. Los Angeles, California	Interchemical Corporation New York, New York
Bryant Electric Company High Point, North Carolina	Ford, Bacon & Davis, Inc. New York, New York	The C. O. Jelliff Manufacturing Corp. Southport, Connecticut
Calumet & Hecla Consolidated Copper Co. Calumet, Michigan	Foster Wheeler Corporation New York, New York	Johnson, Matthey & Company, Inc. New York, New York
Carbide & Carbon Chemicals Corporation New York, New York	Geo. A. Fuller Company New York, New York	J. A. Jones Construction Co. Charlotte, North Carolina
Chapman Valve Manufacturing Company Indian Orchard, Massachusetts	Fulton Sylphon Company Knoxville, Tennessee	Kellogg Corporation and The M. W. Kellogg Company New York, New York
Chrysler Corporation Detroit, Michigan	General American Transportation Corp. Chicago, Illinois	Kinetic Chemicals, Inc. Wilmington, Delaware
Combustion Engineering Company, Inc. New York, New York		W. C. Kruger, Inc. Santa Fe, New Mexico

The Linde Air Products Co.
New York, New York

Link-Belt Company
Chicago, Illinois

Robert E. McKee, Inc.
El Paso, Texas

McGean Chemical Company
Cleveland, Ohio

Mallinckrodt Chemical Works
St. Louis, Missouri

Metal Hydrides, Inc.
Beverly, Massachusetts

Metals Disintegrating Company
Elizabeth, New Jersey

Midwest Piping & Supply Co.
St. Louis, Missouri

Monsanto Chemical Co.
St. Louis, Missouri

National Carbon Company, Inc.
New York, New York

National Research Corporation
Boston, Massachusetts

Norton Company
Worcester, Massachusetts

Pacific Pump Works
Huntington Park, California

Pennsylvania Salt Manufacturing Co.
Philadelphia, Pennsylvania

Phelps Dodge Copper Products Co.
New York, New York

Poe Piping & Heating Co.
Greenville, South Carolina

William A. Pope Company
Chicago, Illinois

Process Engineering, Inc.
Somerville, Massachusetts

Revere Copper & Brass, Inc.
New York, New York

**Roane-Anderson Co. and Turner
Const. Co.**
New York, New York

Sargent & Lundy
Chicago, Illinois

A. S. Schulman Electrical Co.
Chicago, Illinois

Singmaster & Breyer
New York, New York

The Sharples Corporation
Philadelphia, Pennsylvania

Skidmore, Owings & Merrill
Chicago, Illinois

Standard Oil Company (N. J.)
New York, New York

Standard Oil Company of Indiana
Chicago, Illinois

Stone & Webster Engineering Corp.
New York, New York

M. M. Sundt Construction Co.
Tucson, Arizona

Taylor Instrument Companies
Rochester, New York

U. S. Metals Refining Co.
New York, New York

United States Vanadium Corp.
New York, New York

Valley Iron Works Co.
Appleton, Wisconsin

Vanadium Corp. of America
New York, New York

Vascoloy-Ramet Corp.
North Chicago, Illinois

Victoreen Instrument Co.
Cleveland, Ohio

The Vitro Manufacturing Co.
Pittsburgh, Pennsylvania

Watson-Flagg Engineering Co.
New York, New York

Western Electric Company
New York, New York

Westinghouse Electric Corporation
Pittsburgh, Pennsylvania

Whitehead Metal Products Company, Inc.
New York, New York

York Corporation
York, Pennsylvania

UNIVERSITIES AND RESEARCH ORGANIZATIONS

Battelle Memorial Institute
Columbus, Ohio

Brown University
Providence, Rhode Island

California Institute of Technology
Pasadena, California

University of California
Berkeley, California

University of Chicago
Chicago, Illinois

Columbia University
New York, New York

Cornell University
Ithaca, New York

University of Illinois
Urbana, Illinois

Iowa State College
Ames, Iowa

The Johns-Hopkins University
Baltimore, Maryland

Massachusetts Institute of Technology
Cambridge, Massachusetts

University of Michigan
Ann Arbor, Michigan

University of Notre Dame
South Bend, Indiana

Ohio State University
Columbus, Ohio

Princeton University
Princeton, New Jersey

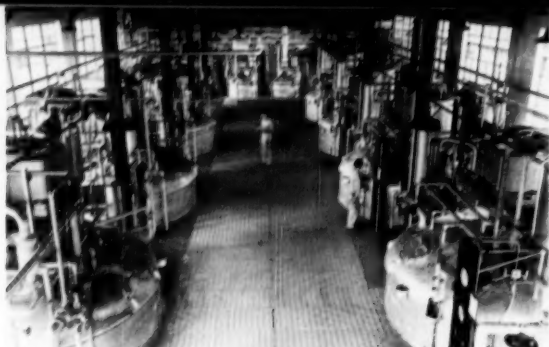
Purdue University
West Lafayette, Indiana

University of Rochester
Rochester, New York

Washington University
St. Louis, Missouri

University of Wisconsin
Madison, Wisconsin

Yale University
New Haven, Connecticut



1947 — In these giant, 15,000-gallon fermenters in Elkton, Va., Merck's biochemical engineers first made sufficient streptomycin available to meet man's needs.



1957 — At Danville, Pa., modern plant buildings house the large-scale manufacture of such vital medicinals as cortisone, hydrocortisone, prednisone and prednisolone products.

1947 **MERCK & CO., INC.**

Emerging from a war of unprecedented destruction, the chemical engineering profession, with a wholesome recognition of its public responsibilities, turned its attention to human problems as basic as life itself. Its eighth award recognized, for the first time, chemical engineering achievements in the application of the biological sciences. It saluted Merck's pioneering in the large scale production of the "wonder drug" streptomycin — and in an even broader sense it paid tribute to a new technology — Biochemical Engineering — for its distinguished service to humanity.

In the following decade Merck research, stemming from the streptomycin development, has carried it into many other equally fruitful fields. In its modern plant at Danville, Pa., we now find efficient facilities for the production of cortisone, hydrocortisone, prednisone and prednisolone. At West Point, Pa., the Merck Sharp and Dohme Division produces the famous Salk poliomyelitis vaccine and other newer tissue culture vaccines. These are but a few of many vital medicinals Merck chemical engineers are now helping to make available to relieve the pain and suffering of their fellow men.

1948 **SHELL DEVELOPMENT COMPANY**

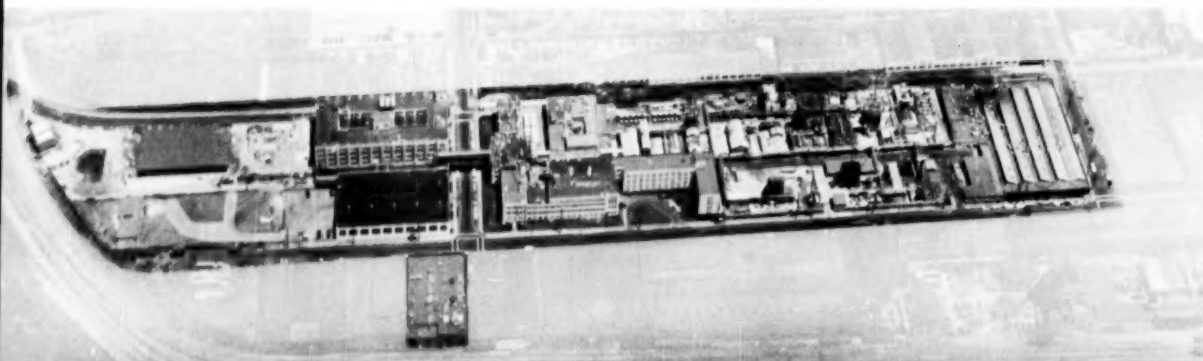
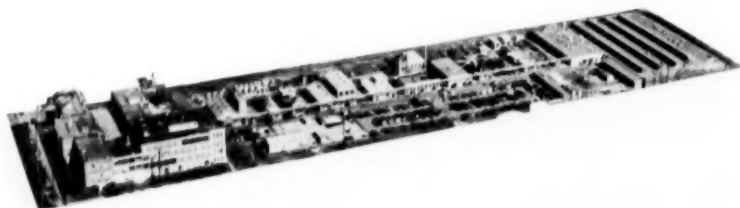
The commercially successful synthesis of glycerine marked a significant milestone in the American petrochemical industry. Here was a basic commodity of commerce with rapidly increasing uses, but with its output largely limited to the byproduct operations of the soap, oils and fats industries. So it was the users of glycerine who put the pressure for production on this pioneer petrochemical organization. Now after almost a decade, Shell Research continues to integrate improvements into the process. Much of this progress has stemmed from the unique research and pilot-plant facilities that Shell

Development has at Emeryville, California.

Here the total staff of the Shell Development Company has grown from 1,205 in 1948 to 2,175 in 1957. At the time of the Chemical Engineering Achievement Award there were 495 scientists and engineers at Emeryville. Today Shell Development's total staff includes 870 scientists and engineers. And, during this period, the Emeryville laboratories have been increased about 50 percent in both land area and floor space and the company's activities now include laboratories at Houston, Texas, and Modesto, California.

1948. Many of Shell's chemical engineering achievements have come from its unique research and pilot-plant units at Emeryville, California.

1957. In nine years land and office areas have expanded 50 percent and exploratory and agricultural chemical research now have their own laboratories.



1949

CELANESE CORPORATION OF AMERICA

When the tenth award honored Celanese for the chemical engineering integration of its chemical, plastics and textile operations, its Chemical Division had but one plant, at Bishop, Texas. Since then new plants have been built at Pampa, Texas, in 1952 to produce petrochemicals from natural gas hydrocarbons and at Point Pleasant, West Virginia, for organic phosphates, plasticizers and functional fluids.

In 1949 the Celanese Chemical Division produced about a dozen chemicals and more than half of its total sales went to the other divisions of the corporation. Today the Bishop, Pampa and Point Pleasant plants turn out more than 40 different chemicals and captive sales account for less than 25 percent of the total. In 1949 external sales of Celanese Chemical Division approximated \$7 billion. By 1956 they had grown to about \$29 billion. Significantly more than 40 percent of the latter came from products introduced since 1949. That research increased in even greater proportion is evident



In 1949 Celanese chemical research and development work centered in these temporary World War II buildings at Clarkwood, Texas.

At the same site today are 11 laboratories, 27 offices and conference rooms and, at right rear, four large-scale pilot plants.

from these contrasting pictures of its laboratory at Clarkwood, Texas.

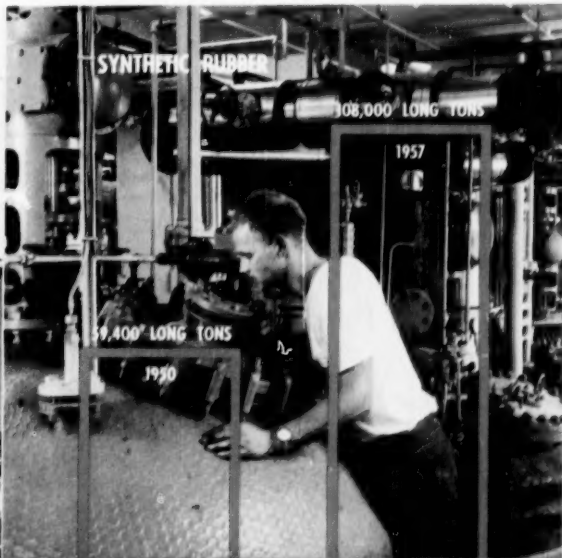
1951 PHILLIPS PETROLEUM COMPANY

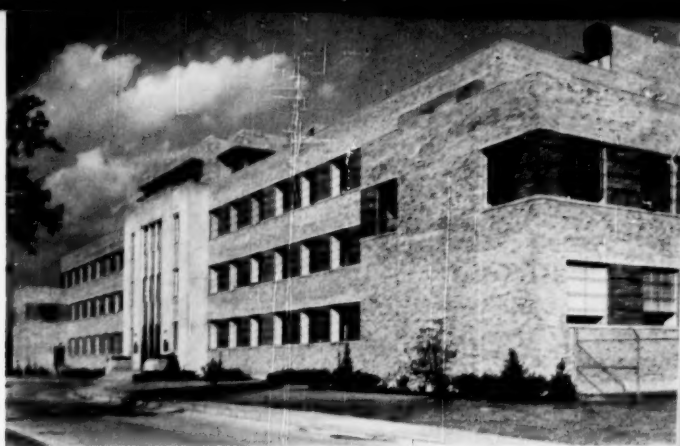
Two interrelated chemical engineering achievements were recognized by this eleventh Award. First was Phillips' pioneering development of high-abrasion carbon black. Second was its major contribution to the success of the cold rubber program. Together, they helped tip the balance from natural to synthetic rubber for tire treads, thus making the United States more nearly self-sufficient in rubber, contributing to both the national defense and the peace-time economy by insuring adequate low-cost transportation.

In six succeeding years, the Phillips Chemical Co. has

become both a leading producer of petrochemicals, and an active participant in the atomic energy program. But that it has not neglected its carbon-black and synthetic-rubber interests is evident from the accompanying illustrations. At Borger, Texas, it operates the largest oil-furnace carbon black plant in the world. With completion of recent expansion at its nearby Plains synthetic rubber plant, Phillips can manufacture numerous types of synthetic rubber polymers at an annual volume equal to the output of 672,000 acres of natural rubber plantation—enough for 22,450,000 passenger car tires.

Look what's happened in six years to the U. S. output of two of America's great growth industries—carbon black and synthetic rubber. Together, they are what keeps America on wheels.





From this nerve center of research and development at South Charleston, W. Va., has come a continuous chain of new Carbide products and processes, often recognized by individual and group Awards for Chemical Engineering Achievement

1953 CARBIDE AND CARBON CHEMICALS COMPANY

The organization we now know as Union Carbide Chemicals Co., Division of Union Carbide Corporation, holds a unique place in the chemical engineering profession. It is the only corporation to have been twice honored by individual awards for its chemical engineering achievements. Equally indicative of its resourcefulness is the fact that it also shared prominently in the two group awards for outstanding wartime achievement—the development of the American synthetic rubber industry and the successful completion of the atomic bomb project. And to a certain extent the parent company can be looked upon as sharing the 1957 honors with its new-

est offspring, the Union Carbide Nuclear Co. inasmuch as all of these developments had their common beginnings in "Carbide Research."

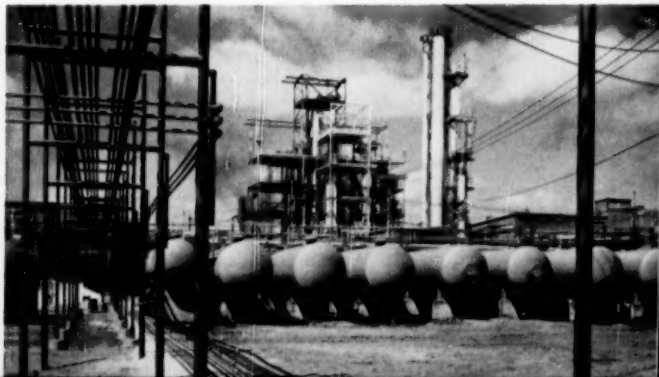
The twelfth Award for Chemical Engineering Achievement was presented in recognition of many years and many millions spent for research in the direct production of aromatic chemicals from coal. That project today is in an advanced but still experimental stage of development. Much has been learned from laboratory studies and pilot plants. But its large-scale commercial operation continues as a challenge for future achievements by this resourceful organization.

1955 DOW CORNING CORPORATION

When Dow Corning's president, Dr. William R. Collings accepted the 1955 award from Chairman Walter G. Whitman he credited their achievement to "intellectual curiosity—coupled with a desire to make new things and to improve on existing products." Theirs was the very first of these awards to recognize the role of the chemical engineer in market research. And in the past two years it is significant that this same teamwork of technology and commerce continues to create new products for ever increasing uses of silicones.

The industry that owed its start to essential wartime needs still has its place in the constant battle to preserve the peace. Its silicone rubber protects electronic fire controls in guided missiles—from sub-zero temperatures to 325 F. Silicone-insulated transformers supply ready power to radar installations far above the Arctic Circle. And your portable TV or new automobile transmission is proof that comparable progress is being made on the civilian front—thanks to the catalytic curiosity of Dow Corning chemical engineers.

"We honor here," said Chairman Whitman, "a company which has demonstrated remarkable initiative and resourcefulness . . . a notable achievement in new product development, technical sales and managerial responsibilities."



This is
**NATIONAL
NORTHERN**

...newest AP&CC division

*Dedicated to research,
development and production in*
**rocket power
technology**

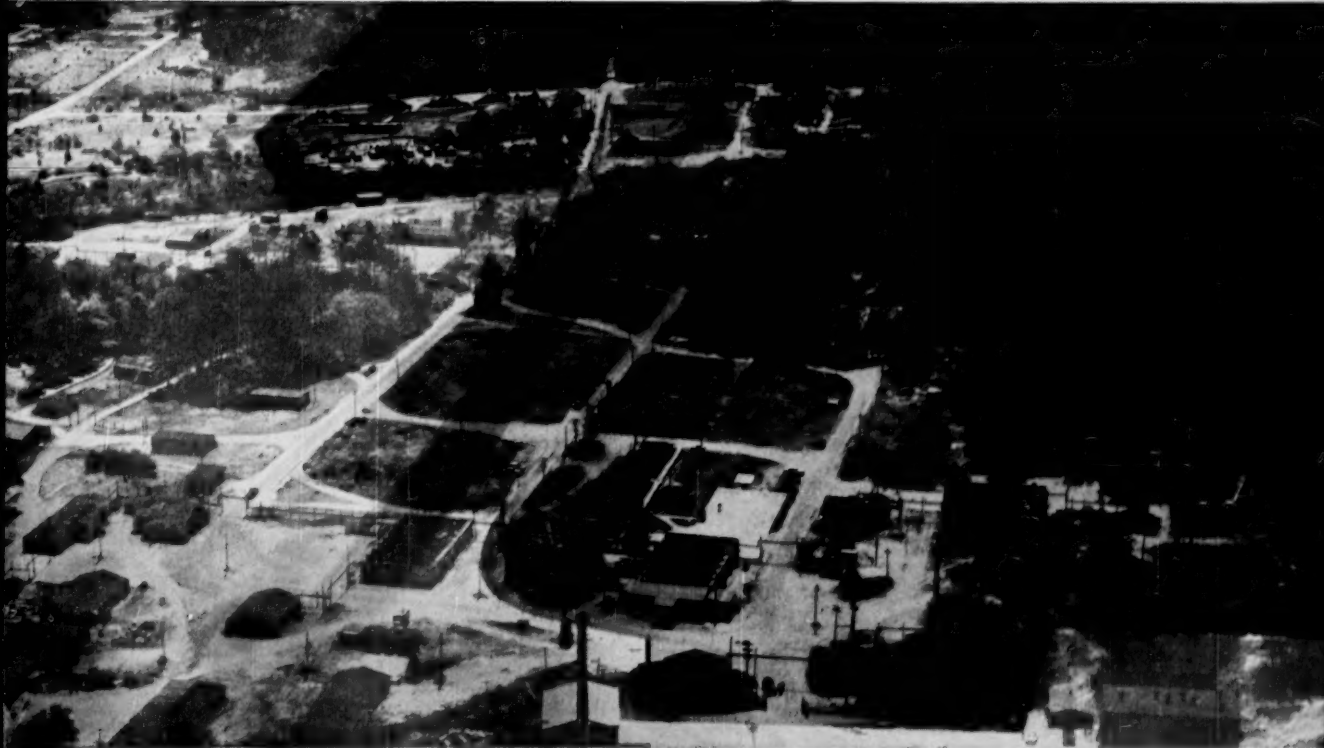


Test a rocket motor's performance at 100,000 feet altitude... determine how extremes of temperature affect explosive and propellant charges... develop igniters of maximum sturdiness and reliability. These are typical activities at National Northern Division, West Hanover, Mass., latest addition to the AMERICAN POTASH family. Here, a qualified staff of scientists and technicians conducts research, development, field testing and production of propellants for rockets and missiles, explosives, pyrotechnics, detonators, igniters, squibs, gas generators, fuzes and other items.

Extreme environmental conditions are simulated in the laboratory or encountered in actual field tests on the firing range at West Hanover or the 1900-acre test range at Halifax, Mass. Here, too, AP&CC will extend its facilities for the investigation and development of TRONA* boron, lithium and perchlorate chemicals in high energy fuels.

For more than ten years National Northern has demonstrated its ability to work in close coordination with others. As an integral part of AMERICAN POTASH & CHEMICAL CORPORATION it is ready to go to work for you!

We invite inquiries leading to research and production contracts.



NATIONAL NORTHERN'S CURRENT FIELDS OF ACTIVITY:

ROCKET-MOTOR-IGNITER DEVELOPMENT • GAS GENERATORS • SURVEILLANCE TESTING OF
EXPLOSIVES AND AMMUNITION • EFFECT OF ALTITUDE ON PERFORMANCE OF EXPLOSIVES,
PROPELLANTS, TRACERS AND INCENDIARY ELEMENTS • DESIGN OF ELECTRIC DETONATORS AND
SQUIBS • AIRCRAFT VULNERABILITY TESTS AND EVALUATION • EXPLOSIVE METAL FORMING



American Potash & Chemical Corporation

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NATIONAL NORTHERN DIVISION
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 Blaw-Knox Co.
 Blackman Chemical Co.
 Brookhaven National Laboratory
 Brush Beryllium Co.
 Callery Chemical Co.
 Carborundum Metals Co., The
 Catalytic Construction Co.
 Chemical Construction Corp.
 Climax Uranium Co.
 Columbia-National Corp.

Honoring Chemical Engineering Contributions to

On Tuesday evening, December 3, 1957, the hustle and bustle so characteristic of Chem Show Week will let up for a few hours, the thousands of lights brightening the more-than-500 booths at New York's massive Coliseum will snap off, and the chemical process industries will pause to salute a monumental chemical engineering achievement.

In the Grand Ballroom of the world-famed Waldorf-Astoria, notables from industry, education and government will gath-

er to pay tribute to the 77 organizations listed above, for their pioneering application of chemical engineering principles and processes to the extractive metallurgy of atomic age metals. Their accomplishments will be recognized by the presentation of the coveted *Award for Chemical Engineering Achievement*, sponsored since 1933 by CHEMICAL ENGINEERING on behalf of the chemical engineering profession.

Recipients of this, the third group award in the history of

the honor, were selected by almost unanimous vote of the Award Committee of 90 senior chemical engineering educators under the chairmanship of Dr. Walter G. Whitman of M.I.T.

In little more than a decade, uranium, plutonium, thorium, zirconium and hafnium, tantalum and columbium, lithium, boron, beryllium and the rare earth metals have zoomed from only names in the Periodic Table to, in many cases, tonnage production. Along with three "older" metals—alumi-

14th Biennial Chemical Engineering Achievement Award

Columbia Southern Chemical Corp.
Tennessee
Crane Co.
Tennessee
Darr- Oliver, Inc.
Ore and Titanium
Dow Chemical Co., The
Ore and Titanium
E. I. duPont de Nemours & Co., Inc.
Platinum and Rhodium
Electro Metallurgical Co., Ore Union
Carbide Corp.
Titanium
Fansteel Metallurgical Corp.
Titanium and Cobaltium
Foote Mineral Co.
Titanium and Lithium
Freeport Sulphur Co.
Nickel
General Electric Co.
Ore and Platinum
Goodyear Atomic Corp., Div. The Good-
year Tire and Rubber Co.
Ore and Titanium
W. B. Grace Co.
Rare Earths
Harshaw Chemical Co., The
Ore and Titanium
Hooker Electrochemical Co.
Rare Earths
Horizons, Inc.
Titanium
International Minerals & Chemical Corp.
Ore and Titanium
International Nickel Co., of Canada, Ltd.
Nickel
Kaiser Aluminum & Chemical Corp.
Aluminum
Kawachi Chemical Co.
Titanium and Cobaltium

Kennametal Inc.
Columbus
Kerr-McGee Oil Industries, Inc.
Ore and Titanium
Knowles Associates
Ore and Titanium
Lindsay Chemical Co.
Titanium and Cobaltium
Lithium Corp. of America
Ore and Titanium
Arthur D. Little, Inc.
Ore and Titanium
Los Alamos Scientific Laboratory
University of California
Ore and Titanium
Mallinckrodt Chemical Works
Ore and Titanium
Maywood Chemical Works
Titanium and Lithium
Metal Hydrides, Inc.
Ore and Titanium
Mines Development, Inc.
Ore and Titanium
National Research Corp.
Ore and Titanium
National Lead Co.
Ore and Titanium
Nuclear Metals, Inc.
Rare Earths
Oak Ridge Laboratories (of Union Car-
bide Nuclear Co.)
Ore and Titanium
Olin Mathieson Chemical Corp.
Rare Earths
Permutit Co., The
Ore and Titanium
Phillips Petroleum Co.
Ore and Titanium
Quebec Iron and Titanium Corp.
Titanium

Reynolds Metals Co.
Aluminum
Rohm and Haas Co.
Ore and Titanium
Rust Engineering Co.
Ore and Titanium
Sheriff, Gordon Mines, Ltd.
Nickel
Singermaster and Briggs
Ore and Titanium
Stanford Research Institute
Ore and Titanium
Stauffer Chemical Co.
Ore and Titanium
Stearns-Roger Manufacturing Co.
Ore and Titanium
Titanium Metals Corp. of America
Ore and Titanium
Union Carbide Nuclear Co.
Ore and Titanium
United States Borax and Chemical Corp.
Rare Earths
U. S. Bureau of Mines
Ore and Titanium
U. S. Industrial Chemicals Div., National
Distillers and Chemical Corp.
Ore and Titanium
U. S. Phosphoric Products Div., Tennes-
see Corporation
Ore and Titanium
Uranium Reduction Co.
Ore and Titanium
Vanadium Corp. of America
Ore and Titanium
Virginia-Carolina Chemical Co.
Ore and Titanium
Vitra Corp. of America
Ore and Titanium
Wah Chang Corp.
Ore and Titanium
Westinghouse Electric Corp.
Ore and Titanium

the Extractive Metallurgy of Atomic Age Metals

num, nickel and titanium—they are uniquely the products of *chemical* metallurgy . . . the application of ion exchange, solvent extraction, chemical precipitation and other processing tools of the chemical engineer to the extraction of metals from their ores.

Dr. Zay Jefferies, noted metallurgical engineer and former vice president and general manager of the chemical department of the General Electric Co., will deliver the evening's keynote address:

Chemical Engineering and Extractive Metallurgy—A Fruitful Partnership. Dr. Whitman will make the presentation. Jesse C. Johnson, director, raw materials division, U. S. Atomic Energy Commission, will accept the 1957 Award in behalf of government and industry.

On the dais, in the audience . . . nearly 2000 engineers and executives from leading chemical and metallurgical companies, research and engineering organizations in industry and government. *You too, are in-*

vited. The form below is for your convenience.

Reception 7 p.m. — Black Tie
— Dinner 8 p.m.

CHEMICAL ENGINEERING AWARD
Room 2400
330 West 42nd Street
New York 36, New York

Please make the following reservations for the Chemical Engineering Achievement Award Dinner. My check for \$....., payable to CHEMICAL ENGINEERING AWARD, is enclosed. The subscription price of \$25 per ticket includes the reception as well as dinner, wines and gratuities.

Mail tickets to:

Name

Address

City Zone State

Note: Reservations close Wednesday, November 20, 1957. After this date refunds cannot be made. Please list your name, title, company and city (and those of your guests) on a separate sheet of paper as they should appear in the printed seating list.



Metals
 Lindsay Chemical Co.
 West Chicago, Illinois
Thorium and Rare Earths
 Lithium Corp. of America
 Minneapolis, Minn.
Lithium
 Arthur D. Little, Inc.
 Cambridge, Mass.

Metals
 Titanium Metals Co.
 New York, N. Y.
Titanium
 Union Carbide Nuclear
 New York, N. Y.
Uranium
 United States Borax and

WE are pleased and honored to be in such distinguished company and to know that our chemical and metallurgical engineering achievement has made a worthwhile contribution to the extractive metallurgy of uranium and other nuclear materials.

Chemical
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 Titanium
 Production
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Uranium, Zirconium, Nickel
 New York, N. Y.
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Uranium
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 New York, N. Y.


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There will be more TANTALUM and COLUMBIUM for 1958 Deliveries

 This year . . . our Golden Anniversary Year . . . has been a very eventful one for Fansteel.

In 1957, we will have produced and delivered more tantalum and columbium than in any previous year in Fansteel history. Much of this has been delivered in the form of fabricated parts and components. A substantial portion of the tantalum output has been made into acid-proof process equipment for chemical plants.

This year, the largest capital expenditures in Fansteel history are being made for new buildings, new research laboratories, new equipment. A new tantalum-columbium plant on a 113-acre tract near Muskogee, Oklahoma, is going into operation as this message is published. Beginning with ores, this plant produces metal powders and ingots, increasing our tantalum production by 50%, and columbium production by 150%.

Altogether, we are constructing more building space in 1957 than the entire Company owned in 1941.

Demand for tantalum during the past several months has taxed our facilities to the extent that it has been necessary for us to operate under self-imposed allocation procedures. We have had to impose on a number of our valuable customers what has appeared to be unreasonably long delivery schedules. We regret deeply that this has been necessary, but we feel, rightly I believe, that national defense needs come first.

It will be seen from the foregoing, however, that something is being done about it. Tantalum and columbium delivery schedules have already been substantially improved, and the improvement will be even greater in 1958.

Sincerely,

President

FANSTEEL METALLURGICAL CORPORATION
NORTH CHICAGO, ILLINOIS, U. S. A.

P370

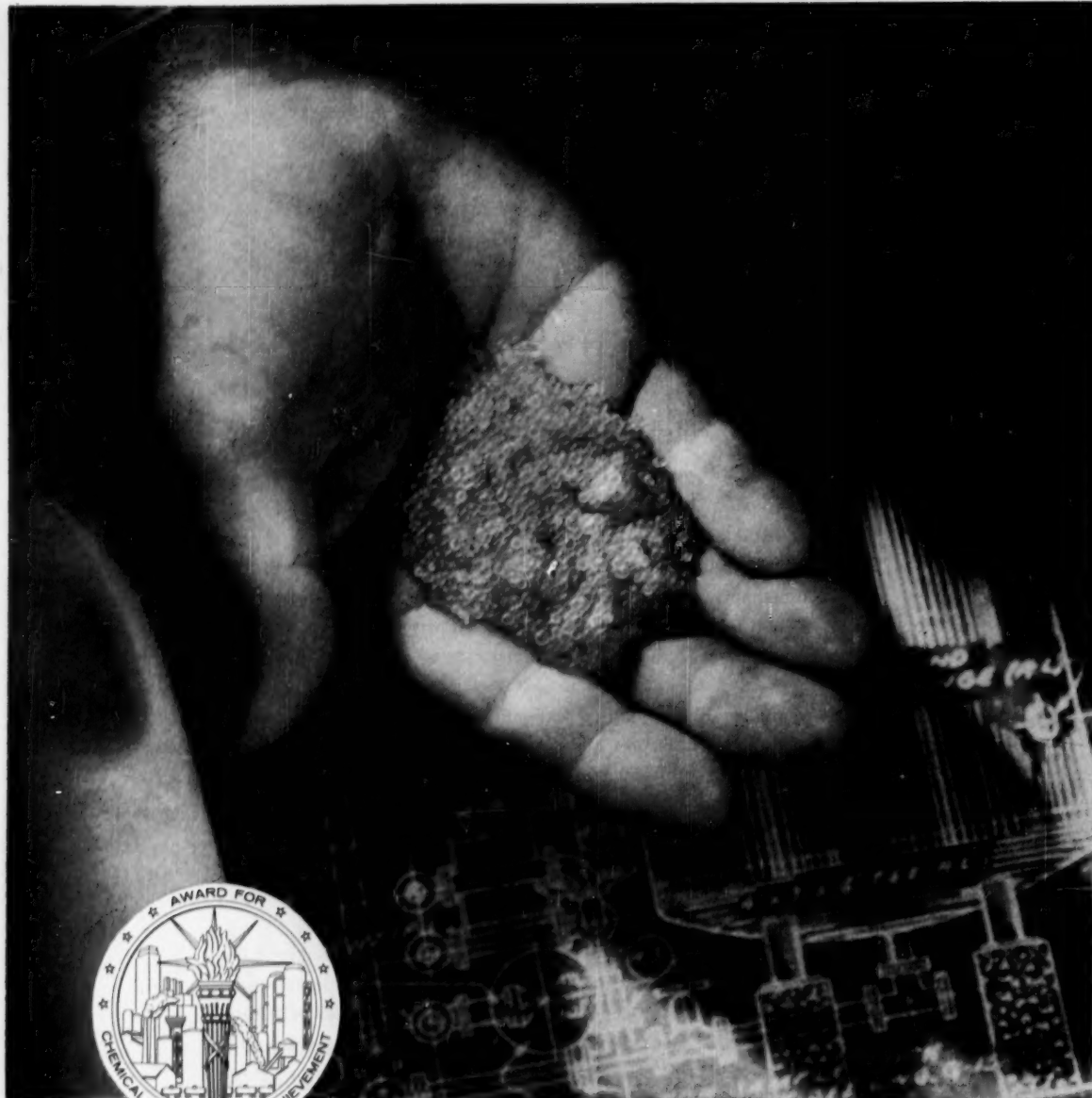


Photo symbolizes Permutit's two-fold interest in ion exchange metallurgy: project engineering and resin technology.

Pioneering in ion exchange metallurgy

● The first five ion exchange plants for extracting uranium on a production basis were designed by Permutit engineers. The first of these has been producing uranium since October, 1952. All of these pioneer ion exchange plants—and other Permutit-designed installations in South Africa, Belgian Congo and Canada—are producing at high efficiency.

Five out of seven of the top-producing U. S. uranium mills using the

resin-in-pulp process now depend on Permutit SKB ion exchange resin. Permutit SKB provides high uranium capacity and efficient recovery under production conditions. It was developed by Permutit polymer technologists especially for uranium extraction.

This record shows that Permutit is in ion exchange metallurgy "with both feet" . . . in both process engineering and resin chemistry. And Permutit's research program in this

field promises important new developments on both fronts.

The Permutit Company, Dept CE-12, 50 West 44th St., New York 36, N. Y. and Permutit Company of Canada Ltd., Toronto 1, Ontario.

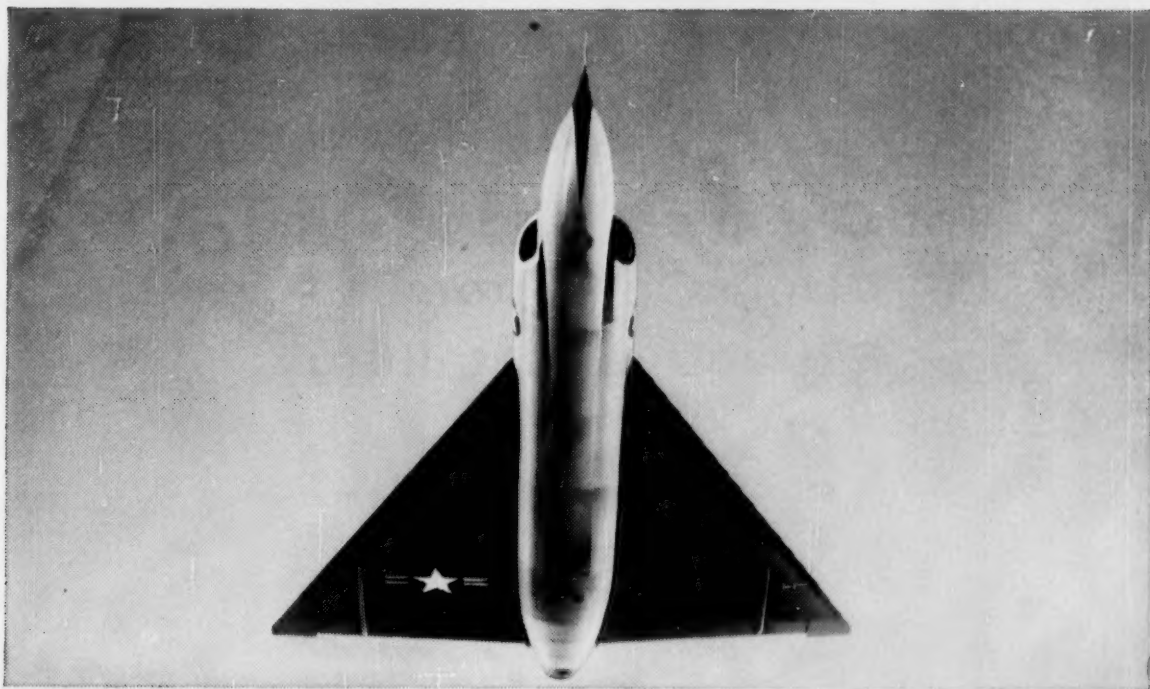
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rhymes with "compute it"

A DIVISION OF PFAUDLER PERMUTIT INC.

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METAL CHLORIDES

... they are available from Stauffer in truck or carload quantities. Boron for high-energy fuels and atomic reactors, silicon for transistors, titanium and boron for supersonic airplanes and guided missiles, all made from metal chlorides supplied by Stauffer.

Stauffer's unparalleled experience with modern techniques in the preparation of metal chlorides has been — continues to be — a major influence on the available quantity, increasing purity and decreasing cost of the sources of these important metals.

For the Trichlorides of Aluminum, Antimony, Boron and Titanium; for the Tetrachlorides of Silicon, Titanium and Zirconium; and for Antimony Pentachloride...

Stauffer is a MAJOR source of supply

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Akron, O. Chicago, Ill. Houston, Tex. Los Angeles, Cal. No. Portland, Ore.
Oakland, Cal. Omaha, Nebr. San Francisco, Cal. Tampa, Fla.

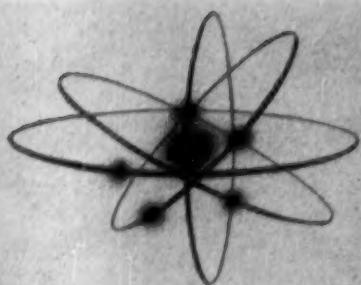
Since 1885 Stauffer Chemical Company has provided American Industry and Agriculture with a growing stream of chemicals... to keep pace with the requirements of expanding basic industries such as steel, petroleum, rubber, glass and paper... to meet the needs of new industries such as synthetic fibers and plastics... and to satisfy the demands of scientific farming for new and effective agricultural chemicals.

Because of basic work in developing the technology of producing metal chlorides, Stauffer Chemical Company has been recognized by
CHEMICAL ENGINEERING'S
"Achievement Award"



for accomplishments in
Extractive Metallurgy





For the Application
of Chemical Engineering
Unit Operations to
Extractive Metallurgy



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FOR SALE

Commercial-grade zirconium sponge (hafnium-containing)

Commercial-grade zirconium is now for sale in tonnage quantities — from Columbia-National in sponge form or as rod, sheet and tubing from the country's leading mills.

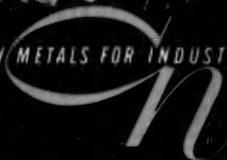
You can put commercial-grade zirconium to work:

- To combat severe corrosion in the process industries.
- For prototype or experimental work in the nuclear energy field.

To help you investigate and use zirconium, Columbia-National offers experienced technical assistance on melting, fabricating and alloying.

New Technical Digest now ready! Write for data on properties and applications of commercial-grade zirconium.

NEW METALS FOR INDUSTRY



Columbia-National Corporation

*Jointly owned by Columbia-Southern Chemical Corporation
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Chemical Progress through
**MATERIALS
DEVELOPMENT**

Nuclear Metals, Inc. (formerly the MIT Metallurgical Laboratory of the Manhattan Engineering District Project for Atomic Energy) offers you the benefits of its unusually broad experience in metallurgical research and development. A participant in the Atomic Energy Program for fifteen years, Nuclear Metals, Inc. has made substantial contributions to the study, development, evaluation and fabrication of many new materials for nuclear reactors. Its staff also has actively engaged in advanced metallurgical development of materials for use in high temperature applications.

Our highly competent staff of 250, plus a well-equipped modern laboratory stand ready to assist you in achieving chemical progress through materials development.

Typical activities include research and development in:

- Zirconium and Molybdenum Tubing • Coextruded Metals • Handling of Liquid Metals and Toxic Materials • Beryllium Development and Fabrication • Special Alloy Development and Fabrication • Special Testing Facilities — Chemical and Spectrographic Analysis, X-ray, Metallography, Corrosion Testing • Radiation Damage Studies • Preparation of Rare and Reactive Metals • Special Ceramics • Fuel Element Fabrication Metals Processing.

If your problems and interests concern nuclear energy, high temperature technology, special structural applications or the handling of corrosive or toxic materials, Nuclear Metals, Inc. invites you to avail yourself of this well-integrated facility for consulting services, fundamental research, development, fabrication and prototype manufacturing.

For the expert metallurgical assistance you require, call upon Nuclear Metals, Inc. — your partner in chemical progress through materials development.

A recent report, "Nuclear Fuels", will be sent upon request.



NUCLEAR METALS, INC.

New Developments Department
223 Albany Street, Cambridge, Mass.

Chemical Progress through
**PROCESS
DEVELOPMENT**

Imaginative chemical engineering is one of the most important phases of industrial research performed by Arthur D. Little, Inc.

Backed up by unusual resources in both technical equipment and manpower, ADL scientists and engineers are constantly engaged in the development of new and improved processes.

A current example:

We are working on a direct reduction process for producing iron that involves the application of the fluid bed technology originally developed for the catalytic cracking of petroleum to produce high octane gasoline. The application of the fluid bed offers an alternate means for large-scale direct reduction of iron ore comparable in capacity to the modern coke blast furnace and using natural gas or residual fuels or reductants.

Our object is to make possible the operation of a steel industry outside of the traditional areas of steel making, which are now limited to locations where iron ore and coking coal can be economically brought together.

The end product of direct reduction would be a high iron-containing material which, when suitably agglomerated, could be directly applied to the conventional open hearth or electric steel-making furnace, thus bypassing the blast furnace.

Such a process would offer economic advantages over blast furnace reduction in many areas where steel making is desirable, but where coking coal is locally unavailable. Write for our booklet: "New Developments in Direct Reduction".



Arthur D. Little, Inc.

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33 Memorial Drive, Cambridge, Mass.

Offices and Laboratories at Cambridge, San Francisco, and Chicago. Regional Offices at Washington, D. C., New York City, Los Angeles, and San Juan, P. R. — BRITISH AFFILIATE: Arthur D. Little Research Institute, Edinburgh, Scotland.

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FERNALD, OHIO PLANT, National Lead Co. (Operator)

BORON-10 MODEL CITY, N. Y. PLANT, Hooker Electrochemical Company



A BETTER MOUSETRAP FOR URANIUM

SX

The uranium processor goes through a ton of hard-rock western ores to recover from 2 to 10 pounds of uranium oxide. Efficiency pays off in lower milling costs as well as in more complete recovery of the precious uranium.

Research scientists have known for some time that solvent extraction—SX to the initiated—was theoretically the best known method of wresting uranium from the tough ores of the Colorado plateau. But it remained for Vitro Uranium Company to apply the process on a practical scale. Its Salt Lake City mill and the Vitro Rare Metals processing plant at Canonsburg, Pa., are among the first to use this efficient high-recovery process. For this, and similar accomplishments, Vitro will share in the 1957 *Chemical Engineering Achievement Award*.

Conversion of its plant to SX is an excellent demonstration of Vitro's know-how across the spectrum of modern technology. Engineers from Vitro Engineering Company, scientists from Vitro Laboratories, and construction specialists from The Refinery Engineering Company joined with Vitro Uranium Company and Vitro Rare Metals Company to build this better mousetrap, uranium style.



Vitro

CORPORATION of AMERICA
261 Madison Ave., New York 16, N.Y.

- ☛ Research, development, weapon systems
- ☛ Nuclear and process engineering, design
- ☛ Refinery engineering, design, construction
- ☛ Uranium mining, milling, and processing

- ☛ Thorium, rare earths, and heavy minerals
- ☛ Recovery of rare metals and fine chemicals
- ☛ Aircraft components and ordnance systems
- ☛ Ceramic colors, pigments, and chemicals

U.S.I. CHEMICAL NEWS

*

A Series for Chemists and Executives of the Solvents and Chemical Consuming Industries

*

Second U.S.I. Polyethylene Plant Planned for 1958

A second plant to produce U.S.I. PETROTHENE® polyethylene will be built at a new location by National Petro-Chemicals Corporation, majority owned and managed by U.S.I. and minority owned by Panhandle Eastern Pipeline Company.

The new plant, scheduled for operation by late 1958, will produce 75 million pounds-per-year of intermediate density polyethylene resins. Capacity of the present Tuscola, Illinois plant is 100 million pounds-per-year, making the Company's total projected capacity 175 million pounds-per-year.

A modification of the conventional high-pressure process, already proved in the Tuscola plant, will be used in the new installation. Resins produced there will be of an intermediate density type, with properties somewhere between those of the original polyethylenes with which the public is familiar, and the new high-density resins produced by so-called "low-pressure" processes.

Gulf Coast Under Consideration

Site for the new plant has not been chosen. Several Gulf Coast sites are under consideration and the Company has already optioned land at more than one location. The new plant will be constructed in a location other than Tuscola in order to assure customers of a continuing source of supply if production at either location were to be temporarily interrupted. Dual locations will also provide two separate shipping points for PETROTHENE resins, and permit even more rapid delivery to customers in some areas.

Engineering of the new plant has not waited for a final decision on location, however, and this phase of the project is already well underway. M. W. Kellogg Company is handling design and construction of the new plant.

National Petro-Chemicals is already the third largest polyethylene producer in the United States, despite its relatively short history in this field. Petro first entered the field in February, 1955 when its 26 million pound-per-year plant in Tuscola, Illinois came onstream. This was expanded in 1956 to 50 million pounds-per-year, and again in 1957 to 100 million pounds-per-year.

New Feed Supplement for Ruminants Made by U.S.I.

A new, patented liquid feed supplement for cattle and sheep, trademarked MOREA®, will be made by U.S.I. and marketed in most states east of the Mississippi and west of the Continental Divide. U.S.I. will operate under license from Feed Service Corp. of Crete, Nebraska, which developed the product. Feed Service Corp. has been test marketing MOREA in the Midwest for the past several years.

The new supplement accelerates rumen fermentation, enabling cattle and sheep to eat and digest more feed in a shorter time. Dairy animals show improved production. Beef cattle grow faster, produce a higher quality meat than cattle raised by other



TVA Pilot Plant Demonstrates Fertilizer Formulation with Wet Process Phosphoric Acid

High Analysis Ammonium Phosphate and Ammonium Phosphate-Nitrate Mixtures Can be Granulated Easily And Economically with Continuous Ammoniator

Pilot plant runs, conducted recently by TVA's Office of Chemical Engineering at Wilson Dam, Alabama, demonstrated new methods for making high analysis ammonium phosphate and ammonium phosphate-nitrate granular fertilizers such as 7-28-28, 17-17-17 and 15-15-15. About 400 members of the industry saw the 3-day demonstrations, in which a key role was assigned to wet process phosphoric acid.

Most of the demonstrations were carried out in TVA's continuous ammoniator, in some cases with auxiliary equipment. This type of ammoniator is simple and has found extensive use in industry. It can be employed to make a wide range of grades from a variety of raw materials, including phosphate rock, the superphosphates, and many of the materials produced by U.S.I.—wet process phosphoric acid, anhydrous ammonia, nitrogen solutions, ammonium nitrate, and sulfuric and nitric acids.

Wet process phosphoric acid was used in preparing all ammonium phosphate and ammonium phosphate-nitrate mixtures shown in the table below, which summarizes data published by TVA.

Granulation of a number of grades was accomplished better with wet process acid than with electric furnace acid. Excellent granulation in high nitrogen products was achieved with wet process acid, to which a

small amount of iron ore form had been added.

Granules of the products were generally spherical and quite hard. Bag-storage and open bin bulk-storage test results were favorable.

Wet Process Acid Economical

Also of prime interest at the demonstrations were studies prepared by TVA indicating that high analysis granular mixtures made with wet process phosphoric acid may be produced at lower cost than conventional fertilizers. This was shown specifically for several grades, using raw materials costs believed typical for a midwestern location.

Other highlights of the demonstrations included manufacture of high analysis mixed goods using diammonium phosphate, superphosphoric acid, and electric furnace phosphoric acid; manufacture of nitric acid phosphates, granular normal superphosphate, granular triple superphosphate, granular enriched superphosphate, and granular no-nitrogen grades.

Material	Grade	17-17-17	15-15-15	11-22-22	16-48-0	8-16-32	7-28-28
Phosphoric Acid, Wet Process	75% H ₃ PO ₄	625	425	809	1767	589	1031
Ammoniating Solution*	—	826 (Z-7)	481 (Z-7)	541 (X)	242 (X)	362 (X-6)	—
Anhydrous Ammonia	—	—	—	—	275	—	173
Ammonium Sulfate	20.5% N	—	500	—	—	—	—
Sulfuric Acid	93% H ₂ SO ₄	112	—	—	—	—	—
Potassium Chloride	60% K ₂ O	567	500	733	—	1067	903
Concentrated Superphosphate	46% P ₂ O ₅	—	150	—	—	—	—
Iron Ore	—	—	—	—	—	20	—
Filler	—	—	—	53	—	—	—
Conditioner	—	44	53	80	88	84	52
Recycle	—	4500	2000	2500	7000	1500	2000

(U.S.I. Designation)	TVA Designation	Free Ammonia	Ammonium Nitrate	Ammonium Carbamate	Water	Total N
(1)	X	22.2	63.0	0	12.8	41.0
(10)	X-6	25.0	69.0	0	6.0	44.8
(2)	Y	26.2	55.5	0	18.3	41.0
(12)	Z-7	19.0	74.0	0	7.0	41.4

U.S.I. CHEMICAL NEWS

CONTINUED Supplement

feeding methods (more marbling with less waste fat).

MOREA is a liquid mixture containing urea, ethanol, phosphoric acid, essential trace minerals and molasses. U.S.I. will sell a concentrated liquid MOREA premix to feed manufacturers who will blend the concentrate with molasses. The company is currently appointing manufacturers who will mix and distribute the final MOREA product to feeders. U.S.I. is a basic producer of ethanol and phosphoric acid which are both in the premix.

X-rays Measure Hafnium In Zirconium Samples

Small amounts of hafnium in zirconium samples can be determined by means of X-ray fluorescence, according to two members of the Faculty of Science of Paris. After a sample is bombarded with X-rays, an aluminum monocrystal and a Geiger counter measure the intensity of the resulting characteristic spectrum of hafnium.

More precise measurements may be obtained by monitoring part of the beam from the X-ray tube with a tantalum sample and an auxiliary counter. A hafnium content of about 0.016% can be detected in this way.

Come to the "Atomfair"

The 1957 Trade Fair of the Atomic Industry is being held at the New York Coliseum from October 28-31. The Fair is being staged in conjunction with the Atomic Industrial Forum's annual atomic industry conference; the Winter meeting of the American Nuclear Society; the first major unclassified Reactor Safety Conference; the second conference on Careers in Nuclear Science & Engineering; and the annual meeting of the Professional Group on Nuclear Science of the Institute of Radio Engineers.

Look for U.S.I. in Booths 117-118.

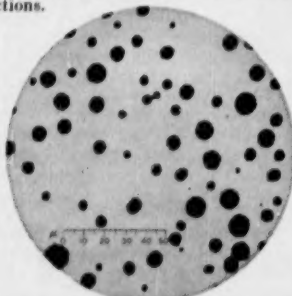
Sodium Dispersions May Be Key to Lower Cost Acetylacetone Production

The use of sodium dispersions as a catalyst for production of acetylacetone may permit substantial reductions in production costs, according to recently reported experimental work. Yields are higher, and reaction time much shorter, than with processes using sodium alkoxide or small pieces of metallic sodium. Also, the hazards involved in producing acetylacetone by the sodium alkoxide route are minimized when sodium dispersions are used.

In the experiments reported, sodium dispersions in toluene and xylene were added to mixtures of acetone and methyl acetate with the medium-boiling hydrocarbons as diluents. The dispersion samples used were obtained from U.S.I. The reaction was carefully controlled. Acetic acid and ethyl acetate were used to separate and extract the acetylacetone. On distillation under vacuum, a water-white, acid-free acetylacetone of 97 to 99% purity was obtained.

Total reaction time was about two hours, as compared with 24 hours with small pieces of sodium and 40 to 50 hours with sodium alkoxide.

A recently published 42 page booklet entitled "Sodium Dispersions" is available from U.S.I. to those interested in using sodium in dispersed form for this or similar reactions.



Photomicrograph of typical sodium dispersion, with most particles of 2-15 microns diameter.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U. S. I.

A new polyvinyl acetate resin emulsion adhesive, compatible with dextrine adhesives, is designed for high-speed case and carton sealing. Adhesives can be changed without shutting down machine to clean glue box. **No. 1281**

Proteins and amino acids in animal nutrition are discussed in detail in a revised, up-to-date booklet. Included are such subjects as Mutual Supplementary Action of Proteins; Relation of Amino Acid Requirements to Protein Level. **No. 1282**

Electronically heat-sealable vinyl gravure inks in a wide range of colors are currently being produced. Prints for automotive upholstery have been heat-sealed without destructive arcing sometimes found in conventional inks. **No. 1283**

An atomic reactor is being made with a polyethylene moderator. Can be used for applied research, radiation testing, a wide range of educational purposes — such as training of reactor operators. Said to be versatile, inexpensive. **No. 1284**

A differential pressure liquid level transmitter mounted directly on a tank nozzle measures viscous or slurry-type liquids in open or closed vessels. It uses a force balance principle, can operate a remote indicator or recorder. **No. 1285**

A bright new B-O-N type red pigment has a bluish shade, good light and bleed resistance. Can be used alone or with other colors for a variety of shades. Said to be lower in cost, easier to grind. **No. 1286**

Polyethylene ware for laboratories and clinics is described in a new 8-page bulletin. Items available include beakers, aspirator bottles, tubing, pipet-fillers, vials, carboys. **No. 1287**

A new synthetic gum is said to be an excellent binder that dissolves in water or alcohol to give non-viscous solutions, even in high concentrations. Requires no preservative, being self-active as bactericide or germicide. **No. 1288**

A new hydrophobic lanolin derivative with good solubility and solubilizing properties is said to be valuable for aerosols, shampoos, suntan and sunscreen preparations, and powders and talcs. **No. 1289**

Fire extinguishers are described in a new buyers guide. Information is given on dimensions, discharge ranges, laboratory approvals and classifications, and other construction data for portable fire-protection equipment. **No. 1290**

PRODUCTS OF U. S. I.

INORGANIC CHEMICALS:

Sodium, Metallic: cast solid in tank cars, steel drums, pallets; bricks in barrels, pallets.

Chlorine: liquid, in tank cars.

Caustic Soda: 50% liquid, in tank cars.

Sodium Peroxide: dust-free granules, in drums.

Sodium Sulfate

Sulfuric Acid: all strengths, 40° Baumé to 40% Oleum. Also Electrolytic grade to Federal specifications. Tank cars or tank wagons.

Phosphoric Fertilizer Solution (Wet Process Phosphoric Acid)

Ammonia: Anhydrous, commercial and refrigeration. Tank cars or tank wagons.

Nitrogen Fertilizer Solutions

Ammonium Nitrate: 83%

OTHER PRODUCTS:

Alcohols: Ethyl (pure and all denatured formulas), Normal Butyl, Amyl, Fuel Oil; Proprietary Denatured Alcohol Solvents SOLOX®, FILMEX®, ANSOL® M, ANSOL® PR.

PETROTHENE® Polyethylene Resins.

Esters, Ethers and Ketones: Normal Butyl Acetate, Dibutyl Phthalate, Diethyl Carbonate, Diethyl Oxalate, Ethyl Acetate, Ethyl Ether, Acetone, Diethylol.

Intermediates and Fine Chemicals: Acetoacetylides, Dimethyl Hydrazine, Ethyl Acetoacetate, Ethyl Benzoylacetate, Ethyl Chloroformate, Ethylene, Ethyl Chloride, Ethyl Sodium Oxalacetate, U.S.I. ISOSEBACIC® Acid, Methyl Hydrazine, Sodium Ethylate Solution, Triethyl Aluminum, Trimethyl Aluminum, Urethane USP (Ethyl Carbamate).

Animal Feed Products: Calcium Pantothate, Choline Chloride Products, Curbey 8-G® 80, Special Liquid Curbey®, DL-Methionine, Nicotin USP, Riboflavin Concentrates, Vitamin B₁₂ and Antibiotic Feed Supplements, Vacatone® 40, Vitamin D₃ and K₂ Products, Antioxidant (BHT) Products, Special Mixes, U.S.I. Pernady Products (Sealed-In Vitamin A).

Pharmaceutical Products: DL-Methionine, N-Acetyl-DL-Methionine, Riboflavin USP, Urethane USP, Intermediates.

Metals: Titanium Sponge, Zirconium Sponge, Zirconium Platelets, Hafnium Oxide, Hafnium Sponge.

U.S.I. SALES OFFICES

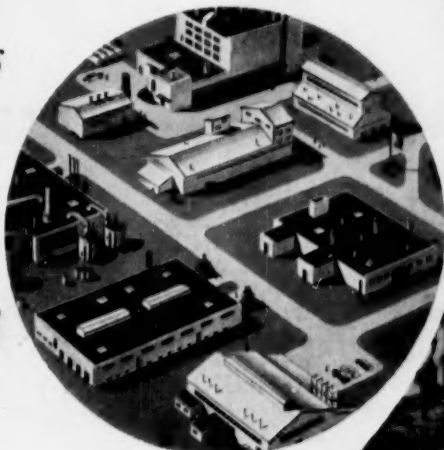
Atlanta • Baltimore • Boston • Buffalo • Chicago • Cincinnati
Cleveland • Dallas • Detroit • Houston • Indianapolis • Kansas City, Mo.
Los Angeles • Louisville • Minneapolis • Nashville • New Orleans
New York • Philadelphia • Pittsburgh • Portland, Ore. • St. Louis
Salt Lake City • San Francisco • Seattle

U.S.I. INDUSTRIAL CHEMICALS CO.
Division of National Distillers and Chemical Corporation
99 Park Avenue, New York 16, N. Y.



*is now
operating over 30 acres
of modern
plant facilities*

dedicated to
**extractive
metallurgy**



Four plants with the most modern metallurgical facilities are in continuous operation by Mallinckrodt. In these plants, there are more than 1200 employees, 275 of whom are chemical or metallurgical engineers and research specialists.

SPECIAL METALS DIVISION PLANT, Hematite, Missouri. Completed in 1956, it is the first privately financed plant to supply the nuclear industry with enriched uranium compounds for use in power and research reactors.

TWO URANIUM PLANTS OPERATED FOR AEC. Mallinckrodt pioneered by producing uranium oxide for the first self-sustaining nuclear reaction, Chicago 1942. Original St. Louis plant facilities have been expanded and a new, larger *second plant* at Weldon Spring is now in operation for the AEC, producing highly purified uranium compounds and metal.

EUXENITE PLANT. This new, unique plant processes thousands of pounds of euxenite ore each day — producing columbium-tantalum pentoxide and lesser quantities of uranium oxide.

Facilities • Experience • Ingenuity — CONSULT

Mallinckrodt

MALLINCKRODT CHEMICAL WORKS

ST. LOUIS, MO. • NEW YORK, N.Y. • HEMATITE, MO. • WELDON SPRING, MO.

1 9 5 7

I

INVENTORY

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26th Chemical Exposition

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Chemicals 170

Equipment 236

Employment 478

Indexes 499

It's called simply the Chem Show. The 26th Biennial Exposition of the Chemical Industries returns this year to New York City. Bigger and better than ever in the new and spacious Coliseum. And here is your guide to the show, its exhibitors and the myriad products and services that they will be offering. This inventory will help you pick out what you want to see, steer you around the four floors. Later, it will helpfully remind you of what you have seen. It's in four parts:

What to look for 39

Floor plans 40

Inventory of exhibitors 44

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Get What You Want From the Show

World's biggest demonstration of the close ties between chemistry and the industrial arts bulges with ideas and contacts you're looking for. Here's a head start toward making your selection.

On Dec. 2-6, the Chemical Exposition returns to New York after an absence of six years. With 20% more space and 15% more exhibitors than its predecessor, this 26th Exposition will occupy all four floors of the Coliseum.

Show covers latest developments in the production of chemicals and the entire range of chemical processing in vertical fields like petroleum products, foodstuffs, textiles, plastics, pharmaceuticals and many others. Scope takes in laboratory, pilot and full-scale plant, extends through new materials of construction, from raw material to fabricated parts, instruments for research and process control, processing equipment and materials handling systems.

Among the many new trends highlighted by the Exposition:

On-stream Process Control—In one case a triple-stage vapor fractometer will greatly expand the range of gas chromatography over that available in the laboratory with existing instruments. At the same time a process-vapor fractometer

applies the same basic technique to on-stream analysis in the processing plant.

Aberrations in the character of the process stream are instantly measured in another type of analyzer using infrared rays.

Continuous automatic analysis for silica concentrations and total water hardness will replace time-consuming laboratory tests in another type of apparatus which permits water softening and demineralizing plants to be made completely automatic. The first units available for American industrial plants will be put on display at the Exposition.

Hard plastics as structural materials—A pump designed to handle ferric chloride in the manufacture of printed circuits has a phenolic type plastic body, neoprene compound impeller, titanium shaft and neoprene lip seal.

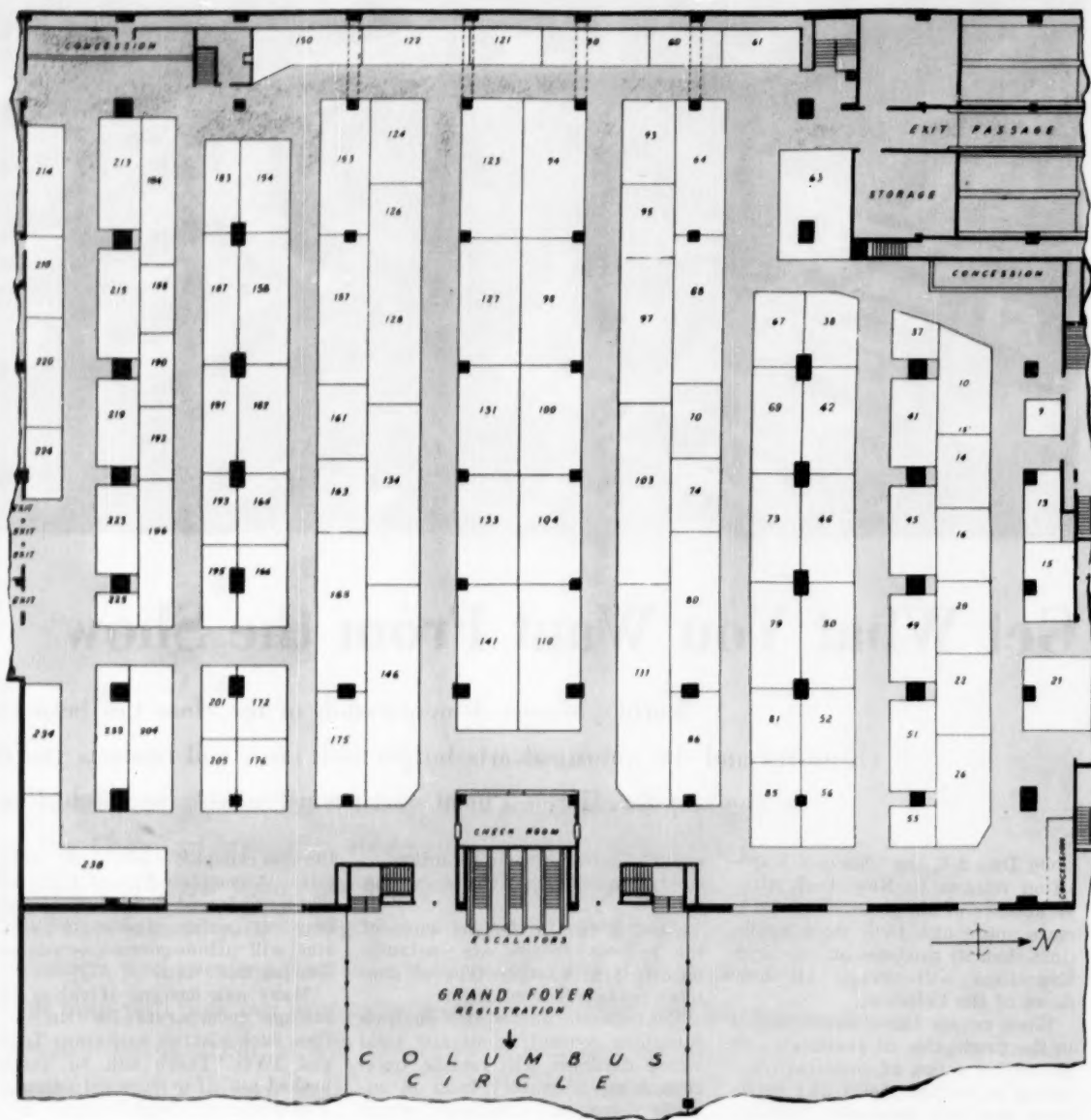
A custom fabricator will show very large and complicated PVC parts, some of which had been thought impractical to mold, also special shapes and covered rolls for

the film cellophane and paper industries. A complete line of PVC and glass reinforced fans, fume scrubbers of solid plastic or lined steel will include corrosion-resistant flooring materials.

Many new designs of valves and fittings incorporate for the first time such plastics as Saran, Teflon and PVC. There will be Teflon-packed seals for chemical pumps, a Teflon-sleeved nonlubricated plug valve and remote-controlled PVC ball valves, also a spigot made from linear polyethylene.

Rare metals harnessed—Show will reveal the first fabricated parts ever manufactured from zirconium, for which a great future is predicted in the manufacture of permanent corrosion-resistant parts. Included in the display will be a heat exchanger, thermowell, valve and reaction tank.

Number of exhibitors of titanium components has markedly increased. Fabrications of this metal will include heat exchangers, valves, tubing, expanded metal and corrosion-resistant screening. There will be



applications of titanium-welded construction, titanium briquettes for addition in metallurgical processes, and a magnesium-zirconium master alloy.

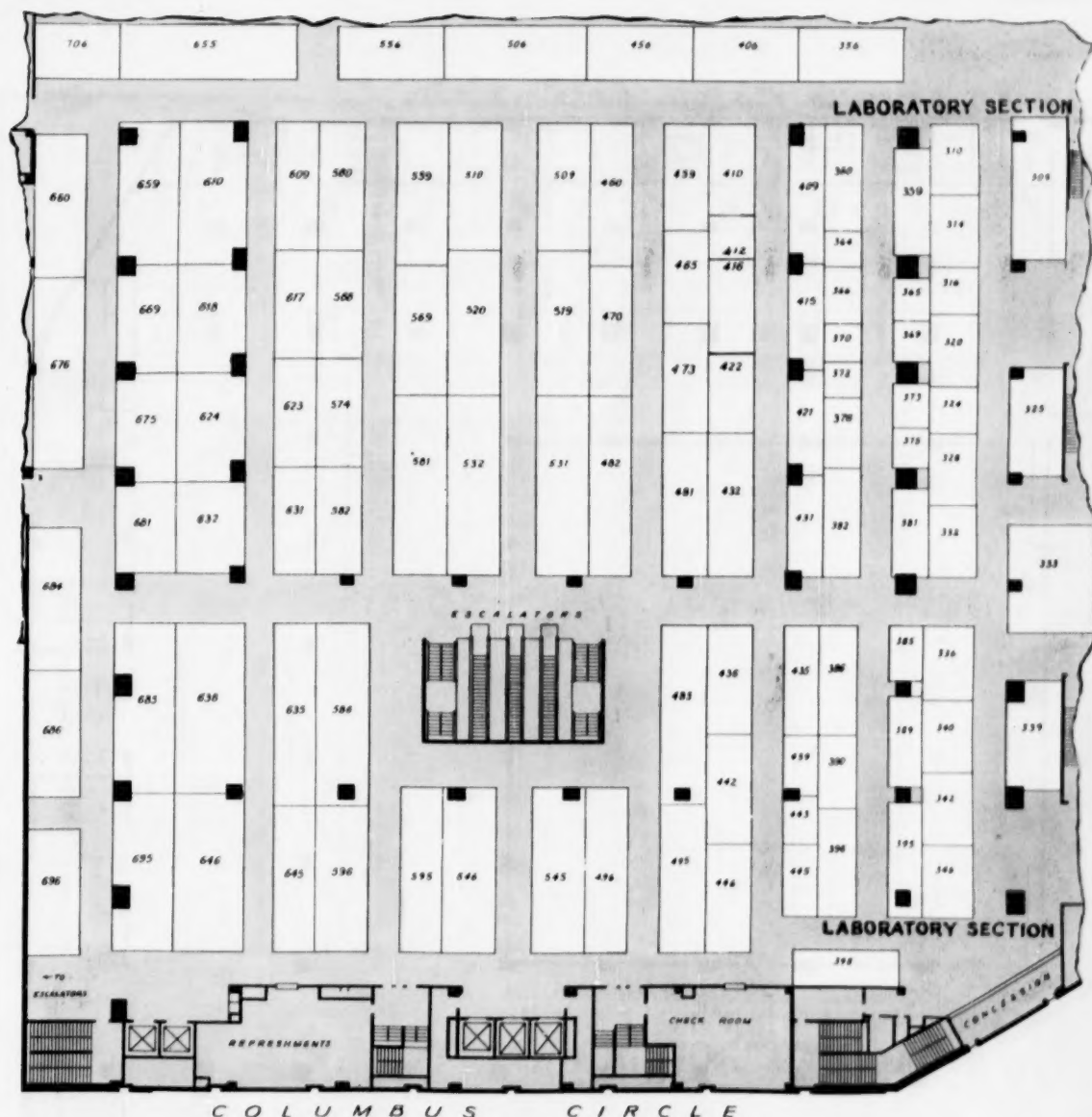
Among metals that are still counted rare, capacitor-grade tantalum will be offered in sheet, foil, wire and granule forms, also gallium, which is used in the preparation of gallium arsenide semi-conductors. Sintered precious metals will be offered for use as catalysts and filtering media.

► **Separate Sections**—Prompted by the Show's wide dimensions, separate sections have been set aside this year for exhibits of chemicals and chemical materials and for laboratory equipment and supplies. There will also be a Rocket and Satellite Section, under the auspices of the American Rocket Society.

► **Chemicals**—Among exhibits of chemicals and materials will be several of the metallic salts showing their application. One group will apply to coating materials, ceramic

glass opacifiers, high-dielectric-constant ceramic powders soluble zirconium salts, high-temperature refractories, titanium carbides, abrasive grains and glass polishing materials. Another will include the wide range of aluminas and fluorides, which have many applications. A third will include lead compounds, currently used in several industries.

Now available in laboratory quantities—soon in bulk—are the amine boranes, representing one of the newest groups of boron compounds.



They are being tested as antioxidants, catalysts, stabilizing and biological agents. There will also be a new metal-fire extinguishant, TMB, a liquid composed principally of trimethoxyboroxine, which burns to leave a glassy coating of boric oxide, smothering the fire. It has been successfully tested on magnesium, zirconium and titanium fires.

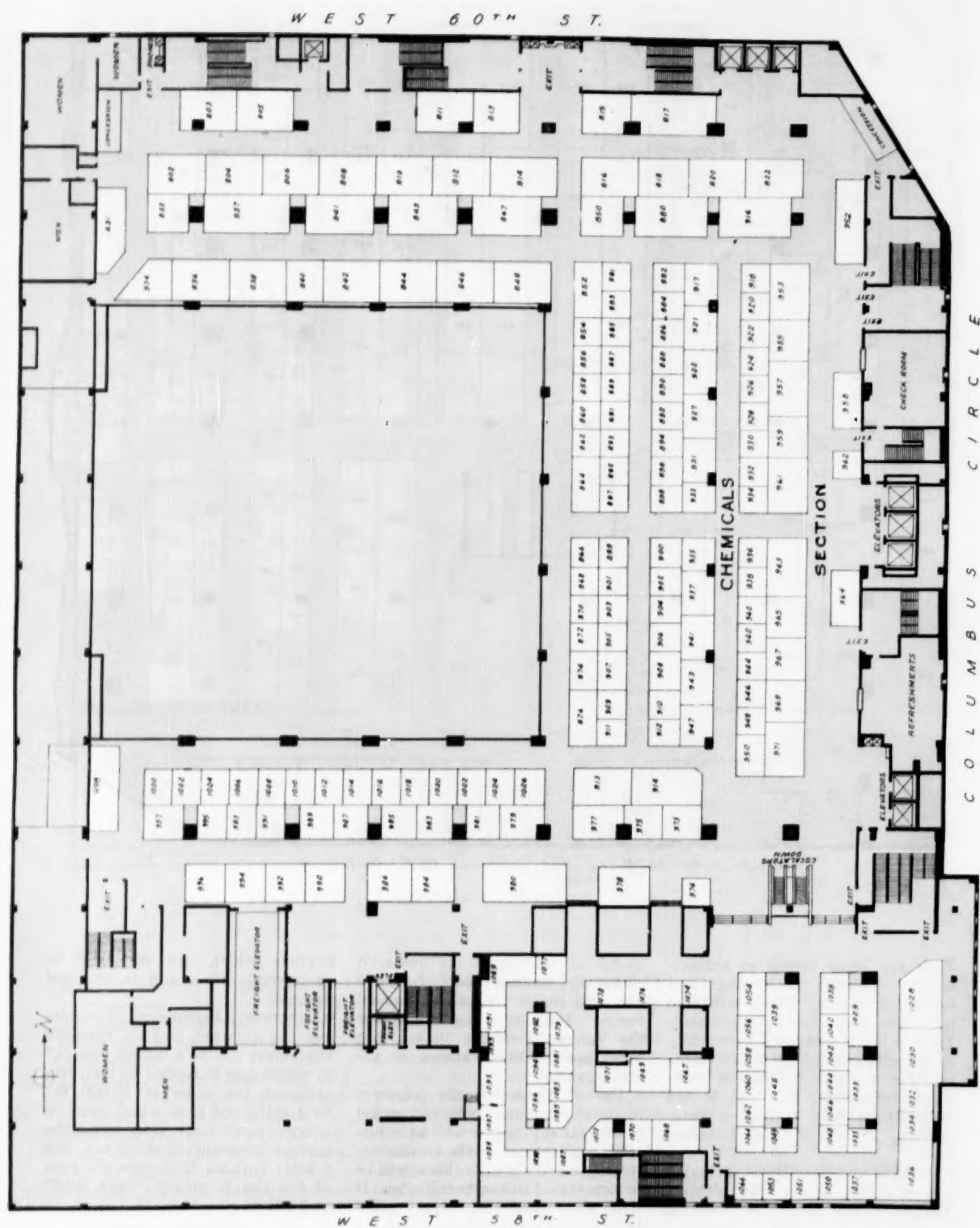
► **Rockets and Satellites**—A major subcontractor under the Project Vanguard will exhibit a full-scale

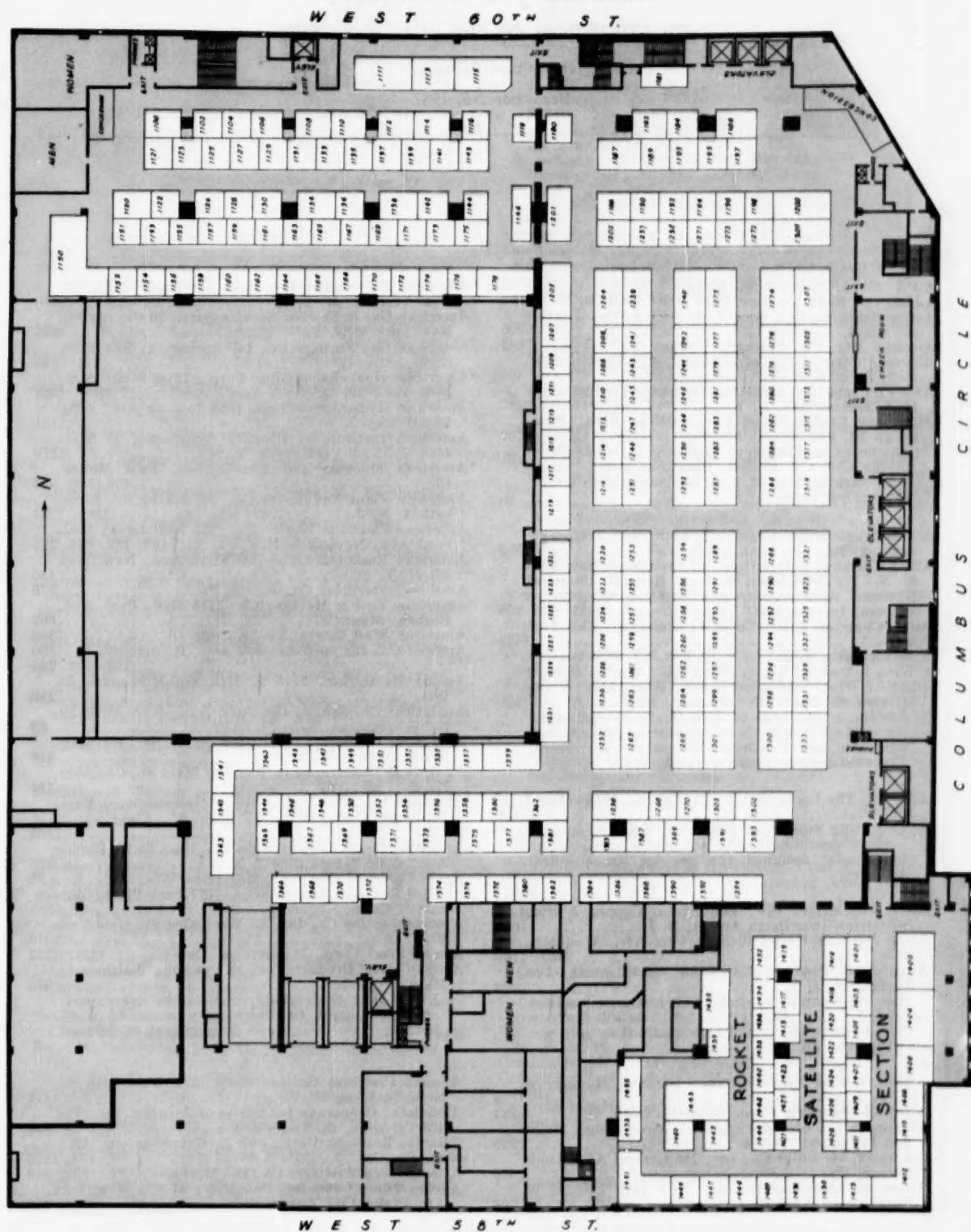
model of an upper air research rocket and another model of a retro and spin rocket. A cutaway model engine of the type used to power the Vanguard vehicle 36 mi. into outer space will be shown at another exhibit.

Use of Thiokol liquid polymers in developing more efficient rocket propellant engines, as well as industrial applications, such as sealing, potting, molding and others, will be demonstrated in another display. It will also show the latest rocket

engines which are employed in space exploration and in national defense.

► **Laboratory Equipment**—Instanting the forward look in research equipment will be a "shock tunnel," in which gas is heated to temperatures on the order of 20,000 F.; fluid stabilized arcs, which produce temperatures more than twice the surface temperature of the sun, and a solar furnace that uses the rays of the sun to obtain "clean heat" at 3,000 C.





Inventory of Exhibitors

26TH EXPOSITION OF CHEMICAL INDUSTRIES

New York Coliseum

December 2-6, 1957

Name of Exhibitor	Booth No.
A.P.V. Co., 137 Arthur St., Buffalo 7, N. Y.	1302
Adams Co., R. P., 225 East Park Drive, Buffalo, N. Y.	836
Aetna Scientific Co., Second & Spring Sts., Everett 49, Mass.	365
Airetool Mfg. Co., Springfield, Ohio	841
Alberene Stone Corp. of Virginia, 419 Fourth Ave., New York 16, N. Y.	465
Alco Products Inc., Industrial Ordnance Products, Box 1065, Schenectady, N. Y.	1415
*Allegheny Ludlum Steel Corp., Oliver Bldg., Pittsburgh 22, Pa.	569
The broad application of Allegheny Stainless Steel in the Chemical Process Industries shares space with various uses of high temperature alloys in the nuclear field.	
Allen-Sherman-Hoff Co., 259 E. Lancaster Ave., Wynnewood, Pa.	1359
*Allied Chemical & Dye Corp., 61 Broadway, New York 6, N. Y.; Divisions: Barrett, General Chemical, National Aniline, Nitrogen, Semet-Solvay, Solvay Process, International	955, 957, 959
*Allied Chemical & Dye Corp., 61 Broadway, New York 6, N. Y.	1439
*Allis-Chalmers Mfg. Co., P. O. Box 512, Milwaukee 1, Wis.; Industries Group, West Allis Works, Milwaukee 1, Wis.; Industries Group, West Allis Works, Milwaukee; Buda Div., Harvey, Ill.	636
See the broad range of Allis-Chalmers equipment for unit operations. New compacting process that converts waste fines into marketable profit. Processing and electrical machinery.	
*Allis Co., The Louis, 427 E. Stewart St., Milwaukee 1, Wis.	100
Operating models of the latest developments in motors, gearmotors, and adjustable speed drives specifically designed for use by the chemical industry.	
Alloy Fabricators Div., Continental Copper & Steel Industries, Inc., Perth Amboy, N. J.	1067
Alloy Products Corp., 1045 Perkins Ave., Waukesha, Wis.	1167, 1169
*Alloy Steel Products Co., 1300 W. Elizabeth Ave., Linden, N. J.	22
See our booth at the chemical industries exposition at the N. Y. Coliseum Dec. 2-6. You will find new ideas and products and men qualified to help you with your problems.	
Alpha Plastics Inc., 78 Okner Parkway, Livingston, N. J.	1274
Alsop Engineering Corp., Milldale, Conn.	381
Aluminum Co. of America, 1501 Alcoa Bldg., Mellon Sq., Pittsburgh 19, Pa.	559
American Air Filter Co., Inc., 215 Central Ave., Louisville 8, Ky.	676
American Chemical Society, 1155 16th St. N. W., Washington 6, D. C.	406

Name of Exhibitor	Booth No.
American Chemical Society News Service, 2 Park Ave., New York 16, N. Y.	410
American Gas & Electric Service Corp., 30 Church St., New York 8, N. Y.	1126
American Gas Furnace Co., 140 Spring St., Elizabeth, N. J.	833
American Heat Reclaiming Corp., 1270 Sixth Ave., New York 20, N. Y.	1056, 1058
American Hydrotherm Corp., 1055 Jackson Ave., Long Island City 1, N. Y.	1161
American Institute of Chemical Engineers, 25 West 45th St., New York 36, N. Y.	1219
*American Machine and Metals, Inc., East Moline, Ill.	456, 506, 556
American Plant Equipment Co., 701 Spring St., Elizabeth 4, N. J.	1282, 1284
American Platinum Works, The, 231 New Jersey Railroad Ave., Newark 5, N. J.	190, 192, 196, 225
American Rocket Society, 500 Fifth Ave., New York 36, N. Y.	1416
American Sterilizer Co., Erie 4, Pa.	366
American Tool & Machine Co., 1415 Hyde Park Ave., Boston, Mass.	862
American Well Works, The, Aurora, Ill.	1390
Amersil Co., Inc., 685 Ramsey Ave., Hillside, N. J.	190, 192, 196, 225
Ampco Metal, Inc., 1745 S. 38th St., Milwaukee 46, Wis.	412
Analytical Chemistry, 430 Park Ave., New York 22, N. Y.	86
Analytical Chemistry, 1155 16th St. N. W., Washington 6, D. C.	410
Analytical Measurements, Inc., 585 Main St., Chatham, N. J.	314
Anderson Co., The V. D., Div. of International Basic Economy Corp., 1935 W. 96th St., Cleveland 2, Ohio	1265
Andrews-Knapp Construction Co. Inc., 23-15 Borden Ave., Long Island City 1, N. Y.	175
Ansul Chemical Company, Marinette, Wis.	95
Applied Research Laboratories, 3717 Park Place, Glendale 8, Calif.	1383
Arenco Machine Co., Inc., 25 West 43rd St., New York 36, N. Y.	1079
Armco Steel Corp., Middletown, Ohio	1221, 1223
*Artisan Metal Products Inc., 73 Pond St., Waltham 54, Mass.	874
Bring your engineering problems to our experienced engineers to discuss any phase of engineering from design and development to finished process equipment.	
Arwood Precision Casting Corp., 321 West 44th St., New York 36, N. Y.	1417
Associated Cooperage Industries of America, Inc., The, 408 Olive St., St. Louis 2, Mo.	898
Atlantic Research Corp., 901 N. Columbus St., Alexandria, Va.	1424, 1426
Atlas Mineral Products Co., The Mertztown, Pa.	858, 860
*Aurora Pump Company, Subsidiary of The New York Air Brake Co., Aurora, Ill.	884, 886

*For more information see advertisement in this issue. Chemical Engineering advertisers listed in bold face type.

Name of Exhibitor	Booth No.
*Autoclave Engineers Sales Corp., 2930 W. 22nd St., Erie, Pa.	346
Visit Autoclave's booth to see display of high pressure equipment for laboratory and pilot plant. Our representatives will be there to discuss your equipment problems.	
Automatic Switch Co., Hanover Road, Florham Park, N. J.	847
Automatic Timing and Controls, Inc., Philadelphia, Pa.	645
Automotive Rubber Co., Inc., 12550 Beech Road at P.M.R.R., Detroit 39, Mich.	1134, 1136

B

B-I-F Industries, Inc., 345 Harris Ave., Providence 1, R. I.	660
*Babcock & Wilcox Co., The, Tubular Products Div., Beaver Falls, Pa.	1002, 1004, 1006
Bailey Meter Co., 1050 Ivanhoe Road, Cleveland 10, Ohio	45
*Baker & Co., Inc., 113 Astor St., Newark 2, N. J.	190, 192, 196, 225
*Baker Perkins Inc., Chemical Machinery Div., Saginaw, Mich.	560 & 609
*Barber-Colman Co., Wheelco Instruments Div., Rockford, Ill.	1374
Multipoint recording and recording-controlling instruments that permit outstanding operation plus easy adjustment, inspection and maintenance will be featured at Barber-Colman booth.	
Barco Mfg. Company, 500 N. Hough St., Barrington, Ill.	439
Barish Pump Co., Inc., 441 Lexington Ave., New York 17, N. Y.	1035
Barnebey-Cheney Co., Cassady at Eighth, Columbus 19, Ohio	52
Barnstead Still & Demineralizer Co., 2 Lanesville Terrace, Forest Hills, Boston 31, Mass.	416
Barrett-Cravens Co., 630 Dundee Road, Northbrook, Ill.	127
*Bart Mfg. Corp., Centrifugal Pump Div., Belleville, N. J.	1341
*Bartlett & Snow Company, The C. O., 6200 Harvard Ave., Cleveland 5, Ohio.	686
*Becco Chemical Div. Food Machinery and Chemical Corp., Sta. B, Buffalo 7, N. Y.	1434
Leading producers of 90% and 98% Hydrogen Peroxide, Olefin Epoxides, Terpene Oxides, and other peroxygen chemicals.	
Beckman & Whitley Inc., Missile Products Div., 985 East San Carlos Ave., San Carlos, Calif.	1446
Beckman Instruments, Inc. Process Instruments Division, Scientific Instruments Division, Systems Division, 2500 Fullerton Road, Fullerton, Calif.	333
Bel-Art Products, 4917 Murphy Place, West New York, N. J.	1098
Belmont Packing & Rubber Co., The, Philadelphia 37, Pa.	21
*Bemis Bro. Bag Co., 408 Pine St., St. Louis 2, Mo.	166
The new bag packaging system includes Rapid-Weigh bagger, conveyor and tape-top closing machine on display. Also pressure-sticking tape applied over sewn closure.	
Bendix Products Div., Missile Section, Bendix Aviation Corp., Mishawaka, Ind.	1438
Bennett Industries, Inc., U. S. Route 54, Peotone, Ill.	1393
Berger Mfg. Div., Republic Steel Corp., Canton, Ohio. .	68
Bethlehem Apparatus Co., Inc., 890 Front St., Hellertown, Pa.	340
Biach Industries, Inc., 10 Indian Spring Road, Cranford, N. J.	1253
*Bird Machine Company, South Walpole, Mass.	685
Most comprehensive range of solids-liquids separating equipment. Pictures and descriptions of six different types of filters and centrifuges being offered at Show.	

Name of Exhibitor	Booth No.
*Bishop & Co. Platinum Works, J., Malvern, Pa.	900, 902
Discuss your specific corrosion resistance requirements and see the new alloys offered by The Stainless Steel Tube Division. Two new developments in the fabricating of noble metals.	
Bishopric Products Co., The, 4413 Este Ave., Cincinnati 32, Ohio	1378
Black Products Co., 135th St. & Calumet Ave., Chicago 27, Ill.	1319
Black, Sivalls & Bryson, Inc., 7500 East 12th St., Kansas City 26, Mo.	669
Blaw-Knox Co., 300 Sixth Ave., Pittsburgh 22, Pa.	581
Blickman, Inc., S., 536 Gregory Ave., Weehawken, N. J.	325
Bolt & Nut Division Republic Steel Corp., Cleveland, Ohio	68
*Bowen Engineering, Inc., North Branch, N. J.	706
Complete range of spray dryers from economical compact laboratory units for small lot production to package high tonnage units designed for lowest cost operation.	
Brabender Instruments, Inc., C. W., 50 E. Wesley St., S. Hackensack, N. J.	342
Brabender Corp., Rochelle Park, N. J.	37
Bragar Co. Inc., Norman, 1060 Broad St., Newark 2, N. J.	1349, 1351
Bramley Machinery Corp., 880 River Road, Edgewater, N. J.	187
Brinkmann & Co. Inc., C. A., 376-380 Great Neck Road, Great Neck, L. I., N. Y.	360
Brookfield Engineering Laboratories, Inc., 240 Cushing St., Stoughton, Mass.	885, 887
Brooks Rotameter Co., P. O. Box 432, Lansdale, Pa.	998
*Brown Company, 150 Causeway St., Boston 14, Mass.	923
Solka-Floc, a highly purified, finely divided cellulose for use as a filter aid; also used in the manufacture of chemical derivatives; as a filler and extender in rubber etc.	
Brown, Judson G., 18 Park Ave., Wakefield, Mass.	1093
Browne-Morse Co., Muskegon, Mich.	1156
Bryant Mfg. Co., 2020 Montcalm St., Indianapolis, Ind.	1089
Bucket Elevator Co., The, 360 Springfield Ave., Summit, N. J.	1040
Buffalo Meter Co., 2917 Main St., Buffalo 14, N. Y.	937
*Buffalo Wire Works Co., 320 Terrace, Buffalo 2, N. Y.	1376
See industrial wire cloth made by Buffalo Wire Works Co., Inc., for the entire chemical industry. Complete range of mesh sizes, weaves, gauges, and metals for all conditions.	
Bufflovak Equipment Div. of Blaw-Knox Co., Buffalo 11, N. Y.	581
Builders-Providence, Inc., 345 Harris Ave., Providence 1, R. I.	660
Burling Instrument Co., 16 River Road, Chatham, N. J. .	9
Buschman Products Inc., 369 Lexington Ave., New York 17, N. Y.	1365

C

C C Pump Mfg. Div. Clark-Cooper Co. Inc., Palmyra, Bur. Co., N. J.	1387, 1389
California Pellet Mill Co., 1114 E. Wabash Ave., Crawfordsville, Ind.	1358, 1360
Callery Chemical Co., 9600 Perry Highway, Pittsburgh 37, Pa.	918, 920
Cambridge Corp., Industrial Park, Lowell, Mass.	1443
Cambridge Instrument Co., Inc., Grand Central Terminal, New York 17, N. Y.	376
Cameron Iron Works, Inc., P. O. Box 1212, Houston 1, Texas	1062
Carbon Division Great Lakes Carbon Corp., 18 East 48th St., New York 17, N. Y.	204
Carbone Corp., The, 400 Myrtle Ave., Boonton, N. J.	803
Carborundum Metals Co., The, Div. of The Carborundum Co., Akron, N. Y.	1222, 1224
Carlisle Gas Burners, Millville, N. J.	1255

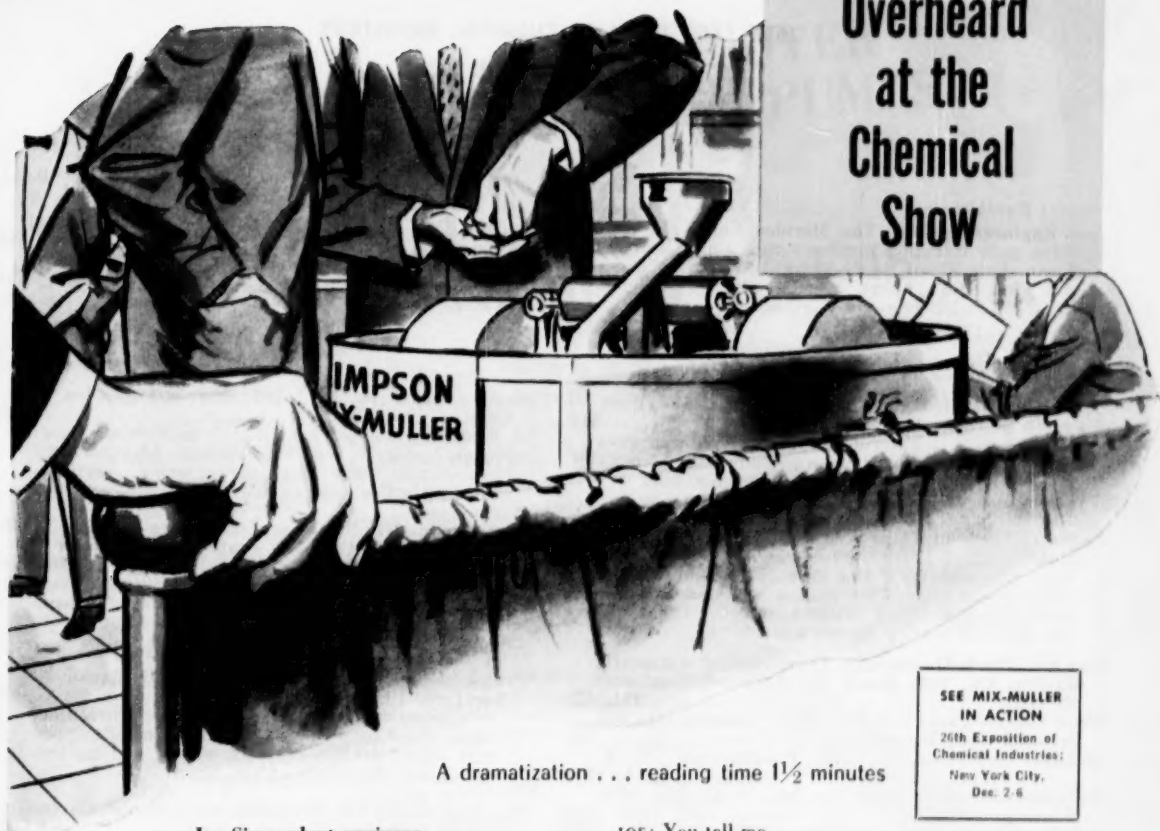
*For more information see advertisement in this issue. Chemical Engineering advertisers listed in bold face type.

Inventory of Exhibitors

Name of Exhibitor	Booth No.	Name of Exhibitor	Booth No.
*Carpenter Steel Co., The, Alloy Tube Division, Union, N. J.	1230, 1232	Chiksan Co., 330 N. Pomona Ave., Brea, Calif.	868, 870
Stainless and special-purpose tubing and pipe for corrosion and heat control. See new super-fine heat exchanger tubing. Get experienced help on your problems, technical service bulletins.		Chrysler Corp., Missile Operations, P. O. Box 2628, Detroit 31, Mich.	1423
Carrier Conveyor Corp., 211 No. Jackson St., Louisville 2, Ky.	1321, 1323, 1325, 1327	*Clark Bros. Co. Div. of Dresser Operations, Inc., Olean, N. Y.	535
Carver Inc., Fred S., 1 Chatham Road, Summit, N. J.	90	Clark Equipment Co. Construction Machinery Div., Benton Harbor, Mich.	1276, 1278, 1280, 1309, 1311, 1313
Catalytic Combustion Corp., 4725 Fourteenth, Detroit 8, Mich.	1165	Clary Corp., 408 Junipero St., San Gabriel, Calif.	1432
*Centrico Inc., 75 West Forest Ave., Englewood, N. J. 842		Cleveland Vibrator Co., The, 2828 Clinton Ave., W., Cleveland 13, Ohio.	993, 995
Westfalia centrifugal separators, clarifiers and concentrators. Featured are new Westfalia laboratory/pilot plant centrifuges, including De-Sludger and "Jet-O-Matic" Separator.		Cleveland Worm & Gear Co., The, 3249-59 East 80th St., Cleveland 4, Ohio	158
Cesco, 4025 Sebastopol Road, Santa Rosa, Calif.	1209	Coleman Instruments, Inc., 318 Madison St., Maywood, Ill.	320
Chain Belt Co., Milwaukee 1, Wis.	1028	Colonial Plastics Mfg. Co., The, Industrial Div., 2685 East 79th St., Cleveland 4, Ohio	1262, 1264
Chamberlain Engineering Corp., Akron, Ohio.	111	Colonial Rubber Co., Oakwood St., Ravenna, Ohio.	111
Chemical Abstracts, 430 Park Ave., New York 22, N. Y.	86	Colton Co., Arthur, Div. of Snyder Tool & Engineering Co., 3400 E. Lafayette Ave., Detroit 7, Mich.	50
Chemical Engineering and Chemical Week, 330 West 42nd St., New York 36, N. Y.	432 & 481	Columbia-National Corp., 70 Memorial Drive, Cambridge 42, Mass.	1044
Drop in, meet the editors and staffs, special exhibits on Chemical Process Industry growth, CE Achievement Award. Watch investments in the CPI grow.		Commercial grade zirconium now for sale in sponge form. Technical information on melting, converting, alloying and application available at Show, or write to company for bulletin.	
Chemical Engineering Catalog, 430 Park Ave., New York 22, N. Y.	86	*Combustion Engineering, Inc., Raymond Div., 1315 N. Branch St., Chicago 22, Ill.	646
Chemical & Engineering News, 430 Park Ave., New York 22, N. Y.	86	Latest units of equipment including a working model of Flash Drying System, the Vertical Mill for extreme fine grinding, and a model of the Mechanical Air Separator.	
Chemical & Engineering News, 1155 16th St., N. W., Washington 6, D. C.	410	*Commercial Filters Corp., 2 Main St., Melrose 76, Mass.	223
Chemical Engineering Progress, 25 West 45th St., New York 36, N. Y.	1219	Commercial Filters Corp.'s display features the latest Fulflo filters and Honeycomb filter tubes for providing micronic clarity of industrial liquids and gases.	
*Chemical and Industrial Corp., The, 256 McCullough St., Cincinnati 26, Ohio	802	Conax Corp., 2300 Walden Ave., Buffalo 25, N. Y.	1349, 1351
Chemical Materials Catalog, 430 Park Ave., New York 22, N. Y.	86	Conneaut Rubber and Plastics Corp., Conneaut, Ohio.	111
Chemical & Pharmaceutical Industry Co., Inc., 90 West Broadway, New York 7, N. Y.	1064	*Continental Can Co., Inc., Robert Gair Paper Products Group, Fibre Drum & Corrugated Box Div., 100 East 42nd St., New York 17, N. Y.	899, 901, 903
Chemical Plants Div. of Blaw-Knox Co., Pittsburgh 30, Pa.	581	No matter what kind of product you make, there's a Continental Fibre Drum for it! Permit our representatives to show you low-cost containers.	
Chemical Processing, 111 E. Delaware Place, Chicago 11, Ill.	880	Continental-Emsco Co., Los Angeles, Calif.	1236
Chemical Week, 330 West 42nd St., New York 36, N. Y.	432 & 481	Continental Mfg. Co., Cincinnati 36, Ohio	1050
*Chemicolloid Laboratories, Inc., 55 Herricks Road, Garden City Park, N. Y.	618	Cooper Alloy Corp., Bloy St. & Ramsey Ave., Hillside, N. J.	103
See display of the new "G" series Charlotta Colloid Mills pilot model to 125 H.P. unit; also new sanitary model, sterile hood pharmaceutical unit.		Corley Co., Inc., The, 103 East Main St., Plainville, Conn.	1060
Chemineer, Inc., 1044 East First St., Dayton 2, Ohio.	1220	Cornell Machine Co., The, 99 Wall St., New York 5, N. Y.	1110
Chemiquip Co., 460 West Broadway, New York 12, N. Y.	1070	Corning Glass Works, Corning, N. Y.	134
Chemo Puro Mfg. Corp., 150 Doremus Ave., Newark 5, N. J.	962	Crane Co., 836 S. Michigan Ave., Chicago 5, Ill.	422
Chempump Corp., 1300 E. Mermaid Lane, Philadelphia 18, Pa.	659	*Crane Packing Co., 6400 Oakton St., Morton Grove, Ill.	908
*Cherry-Burrell Corp., 427 W. Randolph St., Chicago 6, Ill.	984	Crawford Fitting Co., 884 East 140th St., Cleveland 10, Ohio	1045
On display will be homogenizers, industrial rotary fillers, stainless steel sanitary fittings, stainless steel plate-type heat transfer equipment plus heat exchangers and pumps.		Crawford & Russell Inc., 695 Summer St., Stamford, Conn.	1000
		Croll-Reynolds Co., Inc., 751 Central Ave., Westfield, N. J.	1344, 1346
		Croll-Reynolds Engineering Co., Inc., 17 John St., New York 38, N. Y.	1344, 1346
		Culvert Div. Republic Steel Corp., Cleveland, Ohio.	68

*For more information see advertisement in this issue. Chemical Engineering advertisers listed in bold face type.

Overheard at the Chemical Show



A dramatization . . . reading time 1½ minutes

SEE MIX-MULLER IN ACTION

26th Exposition of
Chemical Industries,
New York City,
Dec. 2-6

Joe Sims, plant engineer,
wasn't as idly curious as he sounded
when I overheard this conversation
at a recent trade show:

JOE: What're you grinding up there?

Answer: It's sawdust—but we don't grind anything here. We're "mulling" (pouring the contents of an envelope into the mixer). Watch this . . . (pause).

JOE: That was fast!

Answer: The Mix-Muller dispersed that green dye throughout the sawdust in less than 2 minutes. Call the dye a binder or a reagent and you can better understand why a smearing or rubbing action is essential where dry materials must be mixed with relatively small quantities of liquids, semi solids or amorphous solids.

JOE: You tell me.

Answer: OK, if I stirred the dye in with a stick or paddle we would have a pepper and salt effect. The elements would be next to each other but not blended. It takes the folding of the Mix-Muller plow action, combined with a rubbing, kneading, muller action to give you an intimate, reacted if you will, blend of materials. Apply that to a product that must be extruded, cast, briquetted or wetted to a slurry and you can see why we say we sell controlled uniformity here.

JOE: (Later and aside to me) You know, asking those Mix-Muller people what mulling is, is like putting a nickle in a juke box. They've got a whale of a story on mixing dry solids—I know . . . we've got five of them in our plant. I reconfirm this story every time I come to this show.

If you mix, and it's dry but not a powder, wet but not a liquid there's a whale of a story in this book for you. Write for "Mulling for the Chemical and Process Industry" today!



SIMPSON MIX-MULLER® DIVISION

NATIONAL ENGINEERING CO.,
(Not Inc.)

Machinery Hall Bldg., Chicago 6, Ill.



Inventory of Exhibitors

Name of Exhibitor *Booth No.*
***Cuno Engineering Corp., The, Meriden, Conn.** 1380, 1382
 Solve your filtration problems with Cuno Micro-Klean, Auto-Klean, Super-Auto Klean, Poro-Klean and Flow-Klean filters. Backed by 30 years of filtration experience and engineering.

D

***Davenport Machine and Foundry Co., 1628-66 West Fourth St., Davenport, Iowa** 818
 If you have a dewatering, drying or cooling problem visit the chemical show exhibit and discuss them with our engineering staff, who will be on hand to serve you.

***Day Co., The, 810 Third Ave. N. E., Minneapolis 13, Minn.** 13
 Stop and see Day's new type "RJ" combination cyclone and filter. This unit is well-adapted for pneumatic conveying systems or other types of air systems heavily loaded with dust.

***Day Co., The J. H., Division, The Cleveland Automatic Machine Co., 4932 Beech St., Norwood, Cincinnati 12, Ohio** 121, 122

***Dean Thermo-Panel Coil Div. Dean Products, Inc., 616 Franklin Ave., Brooklyn 38, N. Y.** 184

DeLaval Separator Co., The, Poughkeepsie, N. Y. 1211, 1213

Delaware Barrel & Drum Co., Inc., P. O. Box 1648, Wilmington, Del. 1187, 1189, 1193

Derrick Mfg. Co., 590 Duke Road, Buffalo 25, N. Y. 1076

Despatch Oven Co., 619 S. E. 8th St., Minneapolis 14, Minn. 1168, 1170

Dexter & Sons, Inc., C. H., Windsor Locks, Conn. 1201

DeZurik Corp., Sartell, Minn. 907

Dicalite Department Great Lakes Carbon Corp., 612 S. Flower St., Los Angeles 17, Calif. 204

***Doré Co., John L., 5406 Schuler St., P. O. Box 7772, Houston 7, Texas** 1295, 1297

***Dorr-Oliver Inc., Barry Place, Stamford, Conn.** 531
 Headquarters for fluid processing problems in agitation, classification, centrifuging, filtration, thickening, pumping, and fluidization. Stop by for free bulletin No. 7003.

Dow Chemical Co., The, Magnesium Dept., Midland, Mich. 1429

Downingtown Iron Works, Inc., Div. of Pressed Steel Tank Co., Downingtown, Pa. 631

Dracco Corp., Harvard Ave. & E. 116th St., Cleveland 5, Ohio 987, 989

***Dravo Corp., Neville Island, Pittsburgh 25, Pa.** 1150
 See the operating, production size Dravo conical vacuum dryer with special lump-breaking device. Vibrating screens and helical conveyors will be demonstrated.

Ducon Co., Inc., The, 147 East Second St., Mineola, L. I., N. Y. 1033

Dudco Div. The New York Air Brake Company, 1796 East Nine Mile Road, Detroit, Mich. 884, 886

***du Pont de Nemours & Co., Inc., E. I., Polychemicals Dept., Wilmington 98, Delaware** 950
 Model chemical system (pipes, hose, valves, pump, tank) in which process fluid contacts only "Teflon." Samples of "Teflon" 100X per-fluoro-carbon resin also exhibited.

Duralab Equipment Corp., 979 Linwood St., Brooklyn 8, N. Y. 1245, 1247, 1249

Durametall Corp., Factory St., Kalamazoo, Mich. 1229

Name of Exhibitor *Booth No.*
***Duriron Co., Inc., The, 425 N. Findlay St., Dayton, Ohio** 520 & 532
Dustex Corp., 1758 Walden Ave., P. O. Box 2520, Buffalo 25, N. Y. 1299, 1301
du Verre, Inc., 374 Delaware Ave., Buffalo 2, N. Y. 1049

E

***Eastern Industries, Inc., 100 Skiff St., Hamden 14, Conn.** 1275
 Featuring pumps: centrifugal, positive displacement, hydraulic, and fluid motors. Also featured are mixers: top and side entering, portable, turbine, and laboratory stirrers.

Eastern Stainless Steel Corp., Baltimore 3, Md. 822

Eastman Kodak Co., 343 State St., Rochester 4, N. Y. 1046, 1048

***Eaton-Dikeman Co., The, Mount Holly Springs, Pa.** 1120

The only company in America exclusively engaged in the manufacture of precision-engineered filter papers for industrial filtration, research and testing.

***Eclipse Fuel Engineering Co., 1100 Buchanan St., Rockford, Ill.** 981

Dowtherm vaporizers for high temperature processes. Fired by gas, oil or combination. Equipped with safety devices, controls, wiring, and ignition equipment. See them at the Show.

Eco Engineering Co., Div. of Economy Faucet Co. Inc., 12 New York Ave., Newark 1, N. J. 978

***Eimco Corp., The, 634-666 South Fourth West St., Salt Lake City 10, Utah** 80

Electric Hotpack Co., Inc., Cottman Ave. at Melrose St., Philadelphia 35, Pa. 373, 375

Electro Dynamic Div. of General Dynamics Corp., Bayonne, N. J. 1152

Electrode Div. Great Lakes Carbon Corp., 18 East 48th St., New York 17, N. Y. 204

Electroweld Manufacturing Corp., 1305 Cranberry St., Erie, Pa. 1129

Engelhard, Inc., Charles, 850 Passaic Ave., East Newark, Harrison P. O., N. J. 190, 192, 196, 225

Engelhard Industries, 113 Astor St., Newark 2, N. J. 190, 192, 196, 225

Entoleter Div. Safety Industries, Inc., Hamden, Conn. 645
 Entoleter Division of Safety Industries will exhibit the new heavy duty centrifugal mixer. Our representatives will be present to answer any questions you may have.

Eriez Mfg. Co., 1945 Grove Drive, Erie, Pa. 909, 911

***Ertel Engineering Corp., Kingston 20, N. Y.** 623
 See complete line of asbestos filter sheets, production, laboratory, pyrogen and bacterial retentive filters, vacuum bottle fillers, and pumps and portable mixers.

Ethylene Chemical Corp., 245 Broad St., Summit, N. J. 971

Exact Weight Scale Co., The, 538 East Town St., Columbus 15, Ohio 1371, 1373

F

***Fairbanks, Morse & Co., 600 So. Michigan Ave., Chicago 5, Ill.** 1164, 1166

See push-button-controlled electronic weighing, batching, conveying and loading in action. Discuss your technical problems with Fairbanks-Morse sales engineers.

*For more information see advertisement in this issue. Chemical Engineering advertisers listed in bold face type.

Let us show you how TRI-CLOVER Stainless Steel FITTINGS and PUMPS can help solve your CORROSION-RESISTANT PIPING and PUMPING PROBLEMS

☘ For many years, Tri-Clover Division has specialized in the design and manufacture of stainless steel and Trialloy fittings, valves, pumps and custom specialties, serving the broad chemical-process industries.

Your selection of the *right* fittings, valves, pumps, and tubing for any specific application is made easier by Tri-Clover Division's complete production and engineering facilities. Completely equipped metallurgical engineering and research laboratories are your assurance of *Controlled Quality* products. Here is one dependable source fully qualified to help you solve your corrosion-resistant piping and pumping problems.

See your nearest TRI-CLOVER DISTRIBUTOR
Export Dept.: 8 S. Michigan Ave., Chicago 3, U.S.A.
Cable: TRICLO
In Canada: Brantford, Ontario

LADISH CO.

Tri-Clover Division
Kenosha Wisconsin

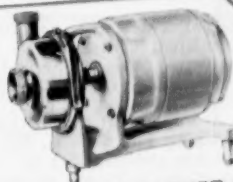
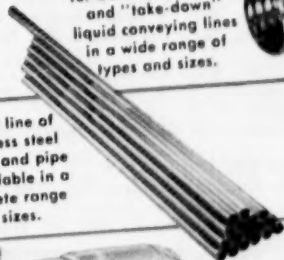


Sanitary type stainless steel fittings and valves are available in a complete range of types and sizes.

"TRI-CLAMP"® stainless steel fittings for both "permanent" and "take-down" liquid conveying lines in a wide range of types and sizes.



A full line of stainless steel tubing and pipe is available in a complete range of sizes.



Tri-Clover sanitary and industrial type centrifugal pumps are built for broad corrosion-resistant pumping service.

See the TRI-CLOVER Division Exhibit
at the 1957 CHEMICAL SHOW

1-257

TRI-CLOVER

Typical installation of Tri-Clover industrial pumps and fittings serving a large pharmaceutical plant.

26TH EXPOSITION OF CHEMICAL INDUSTRIES

Inventory of Exhibitors

Name of Exhibitor	Booth No.
Falcon Alarm Co., Summit, N. J.	1343
*Falcon Mfg. Div., The, of The First Machinery Corp., 211 10th St., Brooklyn 15, N. Y.	1174, 1176
We at Falcon are looking forward to seeing you at our booth at the Chem Show. Our representatives are here to help you with any questions you may have.	
Falls Industries, Inc., Aurora Road, Solon, Ohio.	131
*Fansteel Metallurgical Corp., North Chicago, Ill.	617
The Fansteel exhibit theme is "Rest and Relax". Comfortable chairs, quiet, commercials at a minimum. Our engineers are on hand to discuss corrosion problems.	
Farval Corp., The, 3249-59 East 80th St., Cleveland 4, Ohio.	158
Federal Refractories Corp., Mineral City, Ohio.	111
Fenwal Inc., Ashland, Mass.	834
Fibercast Corp., The, Box 727, Sand Springs, Okla.	1391
Filterite Corp., Green Spring Dr., Timonium, Md.	1158
Filtration Engineers, Inc., A Subsidiary of American Machine & Metals, Inc., 155 Oraton St., Newark 4, N. J.	456
Filtros Inc., Box 367, East Rochester, N. Y.	854, 856
Finn Aeronautical Div. T. R. Finn & Co., 275 Goffle Road, Hawthorne, N. J.	1450
Fischbein Co., Dave, 2726 30th Ave. South, Minneapolis 6, Minn.	872
Fischer & Porter Co., Hatboro, Pa.	496, 545
Fisher Scientific Co., 711 Forbes St., Pittsburgh 19, Pa.	386
Fitzpatrick Co. Inc., The W. J., 1001 W. Washington Blvd., Chicago 7, Ill.	49
Fitzpatco Corp., The, Div. of The W. J. Fitzpatrick Co., 1001 W. Washington Blvd., Chicago 7, Ill.	1095
*Fletcher Works, Inc., Glenwood Ave. & Second St., Philadelphia 40, Pa.	459
Flow Actuated Control Co., Englewood, N. J.	1343
*Fluid Energy Processing & Equipment Co., Richmond & Norris Sts., Philadelphia 25, Pa.	997
"Motionless" jet mill grinds and classifies to -200 mesh or sub-micron particles with air or steam. Handles abrasives to waxes. Also see JET-O-CLONE dust collectors.	
Fluor Products Co., Whittier, Calif.	1036
Food Machinery and Chemical Corp.	831, 1434, 1436
Food Processing, 111 E. Delaware Place, Chicago 11, Ill.	880
Foot Bros. Gear and Machine Corp., 4545 So. Western Blvd., Chicago 9, Ill.	14
Foster Engineering Company, 835 Lehigh Ave., Union, N. J.	947
Foxboro Company, The, Foxboro, Mass.	519
Freszing Equipment Sales, Inc., 1405 N. Duke St., York, Pa.	446
Frick Company, Waynesboro, Pa.	1258, 1260
*Fuller Company, The, Catasauqua, Pa.	446
Discuss your problems with our technicians on conveying, feeding and cooling of dry pulverized and granular materials; compressors; refrigeration boosters; induced draft fans.	

G

Galigher Co., The, 545-585 West 8th South St., P. O. Box 209, Salt Lake City 10, Utah.	1054
*Garlock Packing Co., The, Palmyra, N. Y.	415
Exhibiting a line of mechanical packings including seals of Teflon and Silicones for all Chemical industries.	

*For more information see advertisement in this issue. Chemical Engineering advertisers listed in bold face type.

Name of Exhibitor	Booth No.
Gaylord Container Corp., Div. of Crown Zellerbach Corp., 111 No. 4th St., St. Louis 2, Mo.	1121, 1123, 1125
Geigy Industrial Chemicals Div. of Geigy Chemical Corp., Saw Mill River Road, Ardsley, N. Y.	916
Gems Co., Newington, Conn.	1343
*General Alloys Co., 405 West First St., Boston 27, Mass.	193
Experienced metallurgical and production engineers will discuss the fabrication of high alloy assemblies with you. Company, a specialist in high alloy fabrication and casting.	
*General American Transportation Corp., 135 So. La Salle St., Chicago 90, Ill.	436, 442
Exhibiting operating models of new products in processing, storage, and transportation of bulk chemicals. See the Fluidized Bed Dryer, a new concept in fine and heavy chemicals drying.	
General Ceramics Corp., Keasbey, N. J.	131
General Dispersions Inc., 165 Third Ave. at E. 26th St., Paterson, N. J.	967
General Dynamics Corp., Electro Dynamic Div., Bayonne, N. J.	1152
General Electric Co., Apparatus Sales Div., 1 River Road, Schenectady 5, N. Y.	482
General Electric Co., Missile and Ordnance Systems Dept., 3198 Chestnut St., Philadelphia 4, Pa.	1431
General Laboratory Supply Co., P. O. Box 2607, Paterson, N. J.	310
General Plastics Corp., 165 Third Ave. at East 26th St., Paterson, N. J.	967
General Plate Div. Metals & Controls Corp., Attleboro, Mass.	1094
*Gifford-Wood Co., Hudson, N. Y.	219
Our representatives will be watching for your visit to our booth at the Chemical Exposition, to aid you in seeking out answers to any problems you may have.	
*Girdler Co., The, Catalyst Dept., A Div. of National Cylinder Gas Co., 224 East Broadway, Louisville 1, Ky.	94
Girdler Co., The, Votator Div., A Div. of National Cylinder Gas Co., 224 East Broadway, Louisville 1, Ky.	94
Glengarry, Inc., Bay Shore, N. Y.	60
Globe Co., The, Products Div., 4000 S. Princeton Ave., Chicago 9, Ill.	890, 892
*Goulds Pumps, Inc., Seneca Falls, N. Y.	1204
Specialists in corrosion resistant pumps. Wide selection of centrifugal pumps in stainless steels and other metals. Goulds-Pfaudler Glassed Pump for acids.	
Gow-Mac Instrument Co., 100 Kings Road, Madison, N. J.	1246
Great Lakes Carbon Corp., 18 East 48th St., New York 17, N. Y.	204
Great Western Mfg. Co., Leavenworth, Kansas.	216
Greif Bros. Cooperage Corp., The, 175 E. Hoffman Ave., P. O. Box 398, Lindenhurst, L. I., N. Y.	41
Grinnell Co., Inc., Providence 1, R. I.	566
Gump Co., B. P., 1325 S. Cicero Ave., Chicago 50, Ill.	1024, 1026

H

*Hamer Valves, Inc., 2919 Gardenia Ave., Long Beach, Calif.	1268, 1270
Items to see and inspect are cutaway models of a leakproof gate valve, a plug valve that can't stick and line blind valves for impenetrable line shutoff.	

AT THE CHEM SHOW...

DURIRON

**Your best sign of progress and quality
in chemical service equipment**



THE DURIRON COMPANY, INC. / Dayton, Ohio

THINGS YOU'LL SEE AT THE **DURCO** BOOTH:

**DURCO
CHEMICAL
SERVICE
VALVES**

Type F in a complete range of alloys, Types J and K, and other Durco valves of various designs and alloys.

**FILTRATION
AUTOMATION**

A complete operating Durco-Enzinger filtration station that is fully automatic.

PROCESS PUMPS

A complete range of heavy-duty Series H Durcopumps.

**OTHER DURCO
EQUIPMENT**

Heat Exchangers;
Steam Jets;
Tower Sections;
Impressed
Current Anodes;
and other chemical
service equipment.

BOOTH NO. **532** NEW YORK • DEC. 2 THRU DEC. 6

26TH EXPOSITION OF CHEMICAL INDUSTRIES

Inventory of Exhibitors

Name of Exhibitor	Booth No.
Hamilton Kettles Div. Brighton Corp., Cincinnati, Ohio	1341
Hamilton Mfg. Co., Two Rivers, Wis.	359
Hanovia Chemical & Mfg. Co., 100 Chestnut St., Newark 5, N. J.	190, 192, 196, 225
Hapman Conveyors, Inc., Div. Hapman-Dutton Co., 630 Gibson St., Kalamazoo 6, Mich.	1345
Harbison-Walker Refractories Co., 1800 Farmers Bank Bldg., Pittsburgh 22, Pa.	1241, 1243
*Hardinge Co., Inc., 240 Arch St., York, Pa.	582
Watch our demonstration of the grinding of non-abrasive minerals by the new Hardinge Disc Roll Mill, complete with classifier, product collector and other accessories.	
Hardinge Mfg. Co., 240 Arch St., York, Pa.	582
Haring Equipment Corp., 293 Frelinghuysen Ave., Newark 12, N. J.	1092
Harman Associates, F. Ward, Halesite, L. I., N. Y.	994
Harper Co., The H. M., Morton Grove, Ill.	1032, 1034
Hart-Moisture-Meters (Raymond S. Hart Inc.), 336 West Islip Blvd., Babylon, L. I., N. Y.	369
Havest Industries, Inc., 900 Greenbank Road, Wilmington 8, Del.	546
*Haynes Stellite Co., Div. of Union Carbide Corp., 30 East 42nd St., New York 17, N. Y.	460
Healy-Ruff Co., St. Paul, Minn.	1343
Heil Process Equipment Corp., 12901 Elmwood Ave., Cleveland 11, Ohio	1305
Heinicke Instruments Co., 2035 Harding St., Hollywood, Fla.	1074
*Hercules Filter Corp., 175 Ethel Ave., Hawthorne, N. J.	213
See our booth at the Chemical Industries Exposition at the N. Y. Coliseum Dec. 2-6. You will find new ideas and products and men qualified to help you with your problems.	
Hetherington and Berner Inc., 701-745 Kentucky Ave., Indianapolis 3, Ind.	813
Heyl & Patterson, Inc., 55 Fort Pitt Blvd., Pittsburgh 22, Pa.	15
High Pressure Equipment Co., 1222 Linden Ave., Erie, Pa.	1272
Hills-McCanna Co., 3025 N. Western Ave., Chicago 18, Ill.	1171, 1173, 1175
Hockmeyer & Co., Herman, 341 Coster St., Bronx 59, N. Y.	1178
Hoke Inc., 136 So. Dean St., Englewood, N. J.	201
Hope Electrical Products Co., Inc., 38 Long Ave., Hillside, N. J.	1349, 1351
Hormann & Co., Inc., F. R., 17 Stone St., Newark 4, N. J.	977
Hough Co., The Frank G., Libertyville, Ill.	63
*Howe Scale Co., The, a Subsidiary of Safety Industries, Inc., Rutland, Vt.	645
See our automatic weighing equipment in operation. Bring your weighing problems to the Chem Show and consult with our trained engineers.	
Hungerford & Terry, Inc., Clayton, N. J.	1200
Hunt Machine Co., Rodney, Mill St., Orange, Mass.	1240, 1242, 1244
Hydrex Div., The New York Air Brake Co., 1100 East 222nd St., Cleveland 17, Ohio	884, 886

I

I-T-E Circuit Breaker Co., 19th & Hamilton Sts., Philadelphia 30, Pa.1029

Name of Exhibitor	Booth No.
*Illinois Water Treatment Co., Rockford, Ill.	888
Our ion exchange engineers will be on hand to discuss with you the latest development in ion exchange. See the Higgins Continuous Ion Exchanger.	
Imperial Brass Mfg. Co., The, 6300 W. Howard St., Chicago 31, Ill.	894, 896
Industrial Div. Minneapolis-Honeywell Regulator Co., Wayne & Windrim Aves., Philadelphia 44, Pa.	635
Industrial and Engineering Chemistry, 430 Park Ave., New York 22, N. Y.	86
Industrial and Engineering Chemistry, 1155 16th St. N. W., Washington 6, D. C.	410
Industrial Filter & Pump Mfg. Co., 5900 Ogden Ave., P. O. Box 151, Chicago 50, Ill.	1188, 1190, 1192, 1194, 1196, 1202, 1237, 1238, 1271, 1273
*Industrial Plastic Fabricators, Inc., Endicott St., Norwood, Mass.	1217
IPF invites you to discuss your corrosion problems. See exhibit of PVC centrifugal blowers, tubeaxial fans, air washers as well as special fabrication, pipe, machined parts, valves.	
Industrial Products Engineering Co., 26-40 Jackson Ave., Long Island City 1, N. Y.	1215
Inflico Inc., P. O. Box 5033, Tucson, Ariz.	1163
*Ingersoll-Rand Co., 11 Broadway, New York 4, N. Y.	128
*International Engineering, Inc., Dayton 1, Ohio	812
On exhibit—portable and flexo-shaft mixers, mullers, turbine and propeller type dry and liquid mixers. Also grinding, extruding, and agglomeration machinery.	
International Nickel Co., Inc., The, 67 Wall St., New York 5, N. Y.	509
Interscience Publishers, Inc., 250 Fifth Ave., New York 1, N. Y.	1069

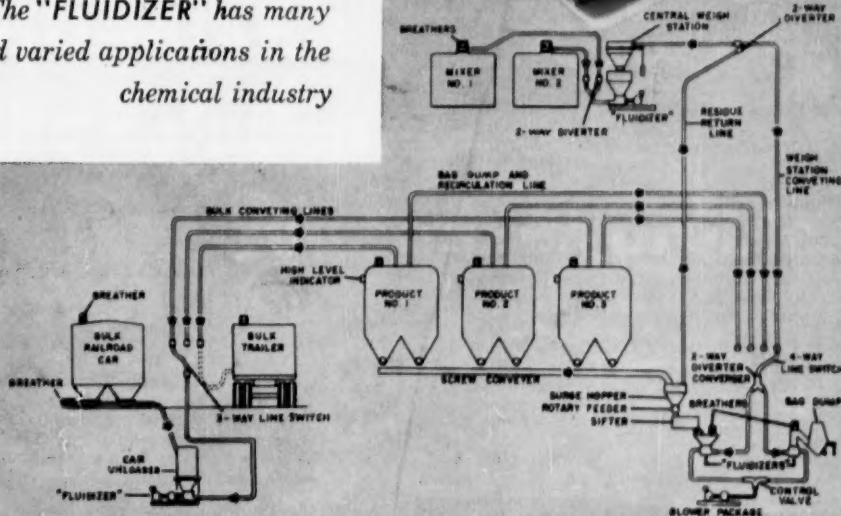
J

Jabsco Pump Co., 2031 N. Lincoln St., Burbank, Calif.	1016
Jacoby-Tarbox Corp., 808 Nepperhan Ave., Yonkers, N. Y.	1362
Jamesbury Corp., 62 Millbrook St., Worcester 5, Mass.	1038
Jarco Services, Inc., Tulsa, Okla.	1343
*Jeffrey Mfg. Co., The, Columbus 16, Ohio	97
Jenkins Bros., 100 Park Ave., New York 17, N. Y.	409
*Jerguson Gage & Valve Co., Adams St., Burlington, Mass.	1182, 1184
See the new magnetic gage—no glass, gaskets or threads. New illuminators give three times illumination, easy relamping. Complete line of liquid level gages; help with problems.	
Johns-Manville Sales Corp., 22 East 40th St., New York 16, N. Y.	172, 176
Journal of Agricultural and Food Chemistry, 430 Park Ave., New York 22, N. Y.	86
Journal of Agricultural and Food Chemistry, 1155 16th St. N. W., Washington 6, D. C.	410
Journal of Chemical Education, 500 Fifth Ave., New York 36, N. Y.	1087

*For more information see advertisement in this issue. Chemical Engineering advertisers listed in bold face type.

If you handle powders, flakes, crystals, beads, pellets, spray or drum-dried materials, other fine granulars... the Superior "FLUIDIZER"® Conveying System may be the way to cut costs and increase production

The "FLUIDIZER" has many and varied applications in the chemical industry

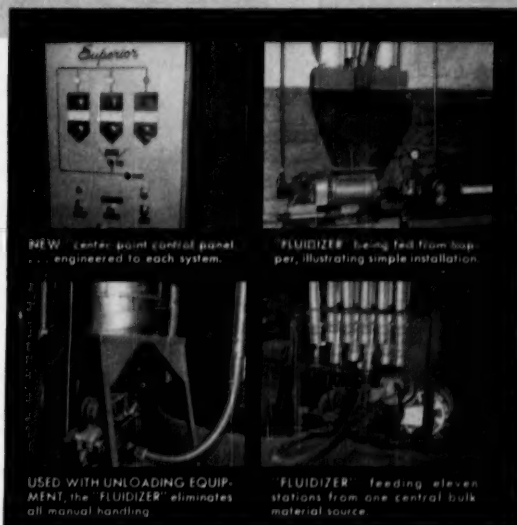


TYPICAL FLOW DIAGRAM shows several possible methods in which you may be able to use the Superior "FLUIDIZER".

SUPERIOR-ENGINEERED "FLUIDIZER" systems have outmoded and replaced many standard pneumatic and mechanical conveying devices in the nation's chemical plants. The package has been kept flexible through the development of a complete line of accessories to provide you with the right system, tailored to your particular problem.

This is industry's most advanced bulk handling system... the only true "FLUIDIZER" Conveying System. It offers many advantages over other systems: high solids-to-air ratio, low power requirements, 50 to 1000-lb. per minute capacities, easy adaptation to automatic operations.

Plan to see the Superior display at the Chemical Show. You'll be especially interested in the new "center-point" control panel which enables one man to handle an entire in-plant conveying system. If you can't attend the Show, call or write your nearest Superior sales office for further information.



NEW center-point control panel... engineered to each system.

"FLUIDIZER" being fed from bag... illustrating simple installation.

USED WITH UNLOADING EQUIPMENT, the "FLUIDIZER" eliminates all manual handling.

"FLUIDIZER" feeding eleven stations from one central bulk material source.

PROCESS MACHINERY DIVISION

Superior
SEPARATOR COMPANY

121 South Washington
Hopkins, Minnesota
WEst 8-7651

420 Lexington Avenue
New York, New York
LExington 2-8878

618 Meadows Building
Dallas, Texas
EMerson 1-5864

919 D East California St.
Pasadena, California
RYan 1-9724

221 North LaSalle
Chicago, Illinois
FRanklin 2-3181

"FLUIDIZER" is a registered trademark of Process Machinery Division of Superior Separator Company, Hopkins, Minnesota, U.S.A.

Inventory of Exhibitors

K

Name of Exhibitor	Booth No.
Kaiser Aluminum & Chemical Sales, Inc., Kaiser Bldg., 1924 Broadway, Oakland 12, Calif.	1128, 1130
Kanigen Div. General American Transportation Corp., 135 S. La Salle St., Chicago 90, Ill.	436, 442
Kaupp & Sons, 32 Newark Way, Maplewood, N. J.	1425, 1427
Kennametal Inc., Latrobe, Pa.	1116, 1137, 1139, 1141, 1143
Kewaunee Mfg. Co., Adrian, Mich.	398
Kimble Glass Co., Subsidiary of Owens-Illinois, Toledo 1, Ohio	390
*Kinney Manufacturing Co., Subsidiary of The New York Air Brake Co., 3529-3541 Washington St., Boston 30, Mass.	884, 886
At the show, Kinney engineers will help you with any high vacuum or liquid pumping problems and show you new developments in Kinney high vacuum pumps and equipment.	
Klein Filter & Manufacturing Co., 26-40 Jackson Ave., Long Island City 1, N. Y.	1215
Klinger Inc., Richard, 550 Fourth Ave., Brooklyn 15, N. Y.	1347
Knapp Mills, Inc., 23-15 Borden Ave., Long Island City 1, N. Y.	175
*Knight, Maurice A., Kelly Ave., Akron 9, Ohio	586
Komline-Sanderson Engineering Corp., Peapack, N. J.	1100
Koven Fabricators, Inc., 90 East Dickerson St., Dover, N. J.	74
Koven & Brother, Inc., L. O., 90 East Dickerson St., Dover, N. J.	74

L

Laboratory Equipment Corp., P. O. Box 151, St. Joseph, Mich.	905
Laboratory Furniture Co., Inc., Old Country Road, P. O. Box 590, Mineola, N. Y.	309
Laboratory Glass & Instruments Corp., 514 West 147th St., New York 31, N. Y.	340
La Bour Co., Inc., The, Elkhart, Indiana	42
*Ladish Co., Cudahy, Wis.	1288, 1290
Complete service in pipe fittings regardless of type, size, pressure rating or material (including Stainless Steels, Aluminum, etc.).	
*Ladish Co., Tri-Clover Div., Kenosha, Wis.	1292, 1294
Company offers a diversified line of stainless steel fittings, valves and corrosion-resistant centrifugal pumps for the chemical-process industries.	
Lancaster Chemical Co., 13th & Broad Sts., Carlstadt, N. J.	922
Lapp Insulator Co., Inc., Process Equipment Div., LeRoy, N. Y.	696
Lawrence Pumps Inc., 371 Market St., Lawrence, Mass.	852
Lead Industries Association, 60 East 42nd St., New York 17, N. Y.	816
Lead Lined Iron Pipe Co., Wakefield, Mass.	70
Lebanon Steel Foundry, Lebanon, Pa.	20
Lehmann Co., Inc., J. M., 550 New York Ave., Lyndhurst, N. J.	1205
Lennard Co. Inc., P. M., 1 Hanson Pl., Brooklyn 17, N. Y.	1227

*For more information see advertisement in this issue. Chemical Engineering advertisers listed in bold face type.

Name of Exhibitor	Booth No.
Leslie Co., Lyndhurst, N. J.	1333
*Line Co. Div. of Union Carbide Corp., 30 East 42nd St., New York 17, N. Y.	460
Link-Belt Co., Prudential Plaza, Chicago 1, Ill.	165
Logan Emergency Showers, Inc., P. O. Box 111, Glendale, Calif.	883
Louisville Drying Machinery Co. Unit General American Transportation Corp., 139 So. 4th St., Louisville, Ky.	436, 442
Lukens Steel Co., Coatesville, Pa.	876
Luzerne Rubber Co., The, Trenton 7, N. J.	435

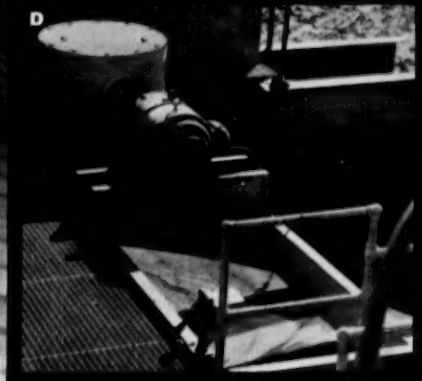
M

McGraw-Hill Book Co., Inc., 330 West 42nd St., New York 36, N. Y.	974
Help in personal and professional development. Many technical books new and revised in 1957. Inspect the famed Chemical Engineering series.	
McGraw-Hill Publishing Co., 330 West 42nd St., New York 36, N. Y.	432 & 481
Wide variety of technical and business magazines cover all phases industry operations. Let us show you how they can help you in your work. See us at booths 432 & 481.	
McIntosh Equipment Corp., 15 Park Row, New York 38, N. Y.	1341, 1343
Magnetrol, Inc., 2110 S. Marshall Blvd., Chicago 23, Ill.	910, 912
Mallory-Sharon Titanium Corp., Niles, Ohio	1135
Mannesmann-Easton Plastic Products Co., Inc., 900 Line St., P. O. Box 541, Easton, Pa.	1115
*Manton-Gaulin Manufacturing Co., Inc., 44 Garden St., Everett 49, Mass.	51
G. T. A. is available to you at booth 51. Bulletins and advice on homogenizing, dispersing and high-pressure pumping, are on hand. Make your problems ours!	
*Marlo Coil Co., 6135 Manchester Ave., St. Louis 10, Mo.	1053, 1066
See our quality line of heat transfer equipment for the chemical process industry. Special fabrications of stainless steel or any other metal to your specifications.	
Marman Div. Aeroquip Corp., 11214 Exposition Blvd., West Los Angeles 64, Calif.	1419
Marsh Stencil Machine Co., Belleville, Ill.	1215
Martin Co., The, Baltimore 3, Md.	1420, 1422
Martin Engineering Co., Neponset, Ill.	1118
Martinson Machine Co., 412 Harrison St., Kalamazoo, Mich.	991
Master Electric Co., The, Division of Reliance Electric & Engineering Company, Dayton 1, Ohio	10
Materials and Methods, 430 Park Ave., New York 22, N. Y.	86
Metal Glass Products Co., Belding, Mich.	623
Metal Hydrides Inc., Beverly, Mass.	944
*Metal Textile Corp., 647 East First Ave., Roselle, N. J.	1020
See our booth at the Chemical Industries Exposition at the N. Y. Coliseum Dec. 2-6. You will find new ideas and products and men qualified to help you with your problems.	

TURBO-MIXER

has the solution to

your mixer problems



Mixing problems? Consult Turbo for the solution. We offer equipment known everywhere for quality; fast convenient service; complete laboratory facilities staffed by engineers who will be glad to work with you. For a high-production, low-maintenance mixer program, call on TURBO.

A No worry about quality with modern Turbo-Mixer facilities like these at Sharon, Pa. All the capacity you require, in Turbo-Mixer Class "A" shops capable of handling mixers from 2' to 20' diameter— $\frac{1}{4}$ to 500 H.P.

B For your special problems or the development of new designs, all the technical knowledge and experience of Turbo-Mixer research men is yours to use. Here we have complete facilities for laboratory and pilot-testing to solve your mixer problems.

C Turbo-Mixer service is fast and efficient...like this new office at Compton, California, Turbo-Mixer has 26 sales and service offices throughout the United States and Canada—plus Erection Service Departments strategically located to serve you.

D Evidence? The bevel gear Turbo-Mixer drivehead in this picture is still in A-1 operating condition after more than 100,000 hours of continuous service with only normal maintenance. It's just one of hundreds of equally satisfactory Turbo-Mixer products serving today's tough industrial requirements.

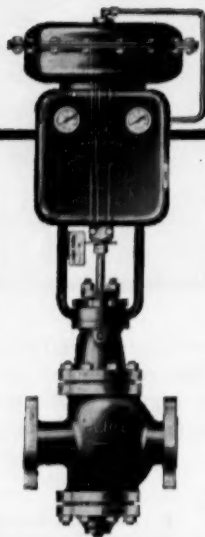
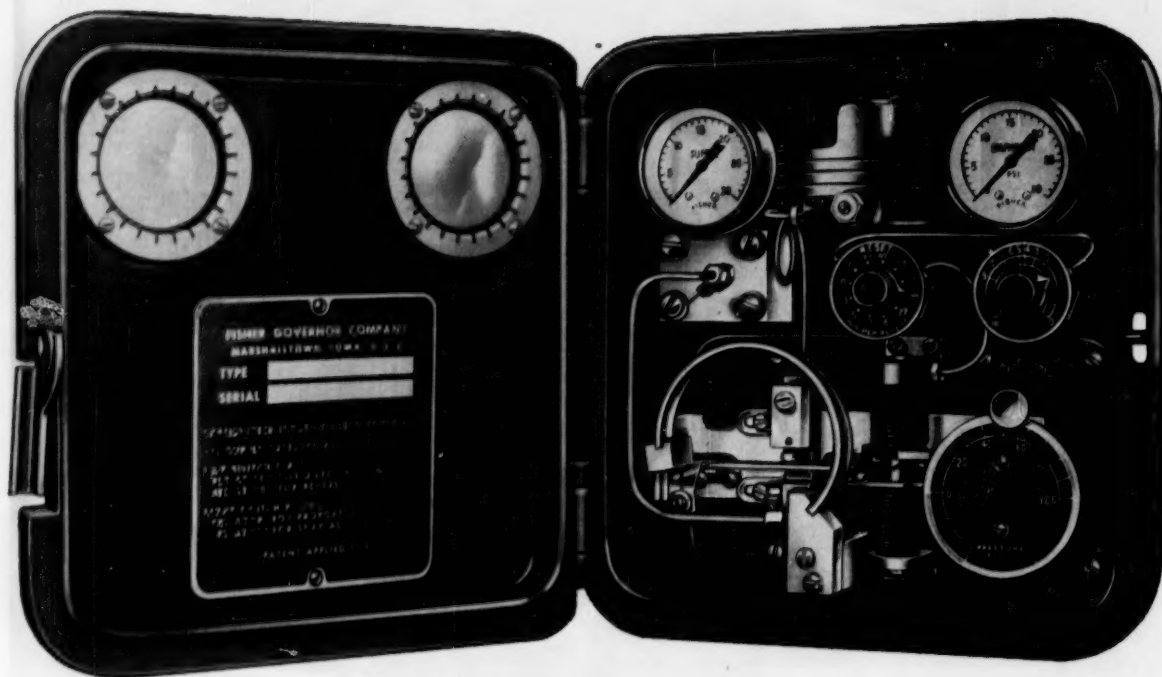


TURBO-MIXER DIVISION

GENERAL AMERICAN TRANSPORTATION CORPORATION

SALES OFFICE: 380 MADISON AVENUE, NEW YORK 17, NEW YORK. General Offices: 135 S. La Salle St., Chicago 90, Illinois. Offices in all principal cities.

**DON'T MISS TURBO-MIXER
AT THE CHEMICAL
SHOW...BOOTH 446**



Any of the Wizard controllers can be yoke mounted on a diaphragm control valve to make a compact pilot operated pressure regulator as shown above. All Wizards are normally supplied with an operating medium air set which filters and reduces supply pressure of 25 to 250 psi to constant pressure of 20 psi for 3 to 15 psi, or 35 psi for 6 to 30 psi operation.

SURFACE MOUNTING

The Wizard can be mounted on the surface of a wall or any stable surface. A special mounting bracket is provided and any type of screw or bolt suitable for the mounting surface may be used.



FLUSH MOUNTING

By turning the bracket around that is provided for surface mounting, any Wizard can be mounted flush to a panel.



WORLD LEADER IN RESEARCH FOR BETTER PRESSURE AND LIQUID LEVEL CONTROL



For closer control in today's
more complex processing industries

FISHER®

WIZARD II

PRESSURE CONTROLLER

For over a quarter century, the name "Wizard" has become a byword as the pressure controller that is accurate, dependable and simple to operate in all types of industry. Now, the WIZARD II takes over to meet the demands of modern, complex control systems requiring closer control. The WIZARD II retains all of the basic simplicity, accuracy and dependability of the Wizard 4100U, plus a number of new components. The WIZARD II is in a waterproof aluminum die-cast case and cover with $\frac{1}{4}$ " tapped vent for gas service. With the addition of a few parts, the basic proportional controller can be converted to: (1) two-position action or "Snap Action", (2) pressure transmitter, (3) controller with remote set adjustment, (4) proportional plus reset response. The WIZARD II can be changed from direct to reverse action or vice versa without additional parts.

The superior subassembly construction stresses simplicity and compactness. Each subassembly is assembled and calibrated prior to mounting in the case. All Series 4150 Wizards can be supplied for remote set adjustment for changing the pressure setting from a location away from the Wizard controller.

Careful and exhaustive tests have conclusively proved that the WIZARD II measures up to the rigid Fisher standards.

A completely descriptive and illustrated bulletin on the WIZARD II is yours for the asking. Write today for Bulletin No. D-4150.

FISHER GOVERNOR COMPANY
Marshalltown, Iowa / Woodstock, Ontario



SINCE 1880

Inventory of Exhibitors

Name of Exhibitor	Booth No.
Metalab Equipment Co. Div. of Norbute Corp., 270 Duffy Ave., Hicksville, L. I., N. Y.	356
Metals & Controls Corp., General Plate Div., Attleboro, Mass.	1094
Mettler Instrument Corp., Box 242, Hightstown, N. J.	339
*Michigan Chemical Corp., 500 N. Bankson St., St. Louis, Mich.	942
Michigan Wheel Co., 235 Market Ave., S.W., Grand Rapids 3, Mich.	1091
Micro Metallic Corp., 30 Sea Cliff Ave., Glen Cove, N. Y.	1012, 1014
Miller & Son, Inc., Franklin P. Supreme Crusher Div., 38 Meadow St., E. Orange, N. J.	1010
Milton Roy Co., 1300 E. Mermaid Lane, Philadelphia 18, Pa.	610
*Mine Safety Appliances Co., 201 N. Braddock Ave., Pittsburgh 8, Pa.	81
Our instrument division is represented to demonstrate and answer questions on our line of gas analyzers. Also on display is complete safety equipment for plant and personnel.	
Minneapolis-Honeywell Regulator Co., Industrial Div., Wayne & Windrim Aves., Philadelphia 44, Pa.	635
Minnesota Mining and Mfg. Co., 900 Fauquier Ave., St. Paul, 6, Minn.	927, 931
Mirenda Corp., 253 Battle Ave., White Plains, N. Y.	1159
Misco Fabricators, 2420 Wills Ave., P. O. Box 125, Marysville, Mich.	1037
Mission Manufacturing Co., Centrifugal Pump Div., P. O. Box 4209, Houston 14, Tex.	817
Missouri Coke & Chemical Div., Great Lakes Carbon Corp., 8251 Maryland Ave., St. Louis 24, Mo.	204
Missouri Division of Resources and Development, Jefferson Bldg., Jefferson City, Mo.	834
*Mixing Equipment Co., Inc., 135 Mt. Read Blvd., Rochester 11, N. Y.	146
Monarch Mfg. Works, Inc., 2501 E. Ontario St., Philadelphia 34, Pa.	881
Montecatini Soc. Gen., Milan, Italy	
American Rep.: Chemore Corp., 21 West St., New York 6, N. Y.	930, 932, 934, 961
*Morehouse-Cowles, Inc., 1156 San Fernando Road, Los Angeles 65, Calif.	814
See the Morehouse Mills for attrition grinding and particle-size reduction. Also the Cowles Dissolvers for high-velocity, multi-directional mixing and dispersing.	
*Multi Metal Wire Cloth Co., Inc., 1350 Garrison Ave., New York 59, N. Y.	191
Introducing the rim-lok filter leaf for fastening, tensioning of filter cloth in filter leaves; micro-mesh, an ultra-fine metallic filter cloth; mykropore, a metallic filter medium.	
*Mundet Cork Corp., 7101 Tonnelle Ave., North Bergen, N. J.	16
See Mundet's expanded Polystyrene Pipe Covering and Board insulation for low temperatures; Mundet Tri-Calite and Mundet 85% Magnesia pipe covering and board—high temperature insulation.	

N

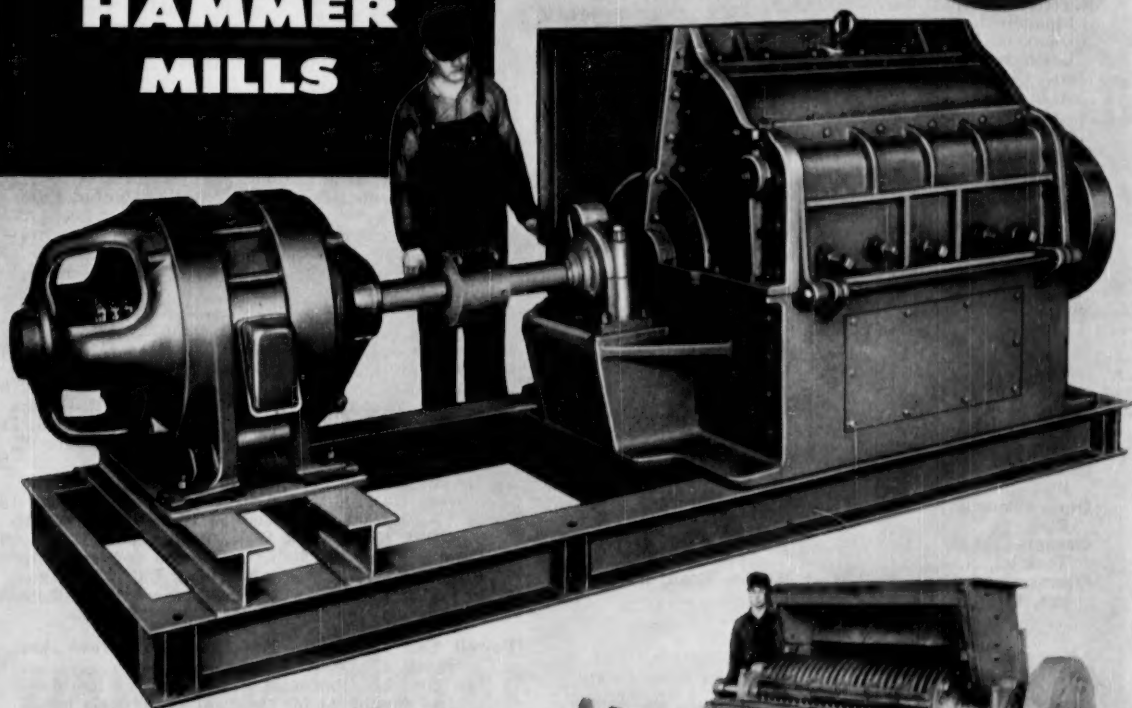
Nalge Co., Inc., The, 625 South Goodman St., P. O. Box 365, Rochester 2, N. Y.	1106
Namco Machinery Inc., 54 Kosciusko St., Brooklyn 5, N. Y.	1172
*Nash Engineering Co., The, South Norwalk, Conn.	238
Nash Engineering Corp. will show Chem Show visitors how the condensing effect which occurs inside the Nash Pump produces higher vacuum.	

Name of Exhibitor	Booth No.
National Carbon Company Div. of Union Carbide Corp., 30 East 42nd St., New York 17, N. Y.	460
*National Dust Collector Corp., 549 W. Washington Blvd., Chicago 6, Ill.	675
Hydro-Filter wet type dust collector which has no moving parts, no baffles and nothing to "load up" will be shown. Full size unit will be shown in booth.	
*National Engineering Co., Simpson Mix-Muller Div., 549 W. Washington Blvd., Chicago 6, Ill.	675
"Elevayor"—new fast means of elevating and carrying material from Mix-Muller will be introduced. Lab mixer and portable Mix-Muller will be shown in booth.	
*National Filter Media Corp., The, 1717 Dixwell Ave., New Haven 14, Conn.	1113
The National Filter Media Corp. will exhibit its extensive lines of natural and synthetic fiber filter cloths. Competent engineers will be in attendance to advise on selection.	
National Instrument Co., 2701 Rockwood St., Baltimore 15, Md.	1070
National Lead Co., Titanium Alloy Mfg. Div., 111 Broadway, New York 6, N. Y.	234
National Rosin Oil Products, Inc., Savannah, Ga.	917
National Tube Div., United States Steel Corp., 525 William Penn Pl., Pittsburgh 30, Pa.	495
Nerofl Dept., Great Lakes Carbon Corp., 333 N. Michigan Ave., Chicago 1, Ill.	204
*Newark Wire Cloth Co., 351 Verona Ave., Newark 4, N. J.	183
See our booth at the Chemical Industries Exposition at the N. Y. Coliseum Dec. 2-6. You will find new ideas and products and men qualified to help you with your problems.	
New Brunswick Scientific Co., P. O. Box 606, New Brunswick, N. J.	324
New England Tank & Tower Co., Everett, Mass.	79
New York Air Brake Co., The, 230 Park Ave., New York 17, N. Y.	884, 886
New York Laboratory Supply Co., Inc., 76 Varick St., New York 13, N. Y.	1022
*Niagara Blower Co., 405 Lexington Ave., New York 17, N. Y.	655
Niagara aero steam, gas, and vapor condensers; self-contained condensing systems for vacuum process or distillation. Also heat exchangers, after coolers, liquid coolers, heaters.	
*Niagara Filters Div., American Machine and Metals, Inc., E. Moline, Ill.	556
Is your filtration problem that of liquid clarification? Or solids recovery? Or recovering 100% of both filtrate and cake? Get help on all three at Niagara's booth.	
*Nichols Engineering Co., The, 3816 West Grand Ave., Chicago 51, Ill.	1051
*Nichols Engineering & Research Corp., Neco-Niro Spray Dryer Div., 70 Pine St., New York 5, N. Y.	624
We at Nichols are looking forward to seeing you at our booth at the Chem Show. Our representatives are here to help you with any questions you may have.	
Niles Steel Products Div., Republic Steel Corp., Niles, Ohio	68

*For more information see advertisement in this issue. Chemical Engineering advertisers listed in bold face type.

WILLIAMS *heavy duty* HAMMER MILLS

See Us!
BOOTH 161
FIRST FLOOR
CHEM. SHOW



- **Crushes, Grinds, Shreds To Finished Size In One Operation**
- **Reduces Production Costs Up To 50%**
- **Saves Up To 75% On Equipment Cost**



Williams No. 60 GA Mill with heavy duty steel plate frame. Cover has been opened to show heavy duty manganese steel liners, breaker plates, grate bars and hammers.

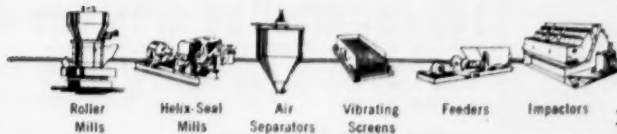
Whether your size reduction job involves crushing, grinding or shredding—whether the material is mineral, chemical, vegetable or animal—Williams has a hammer mill designed to do it from start to finish in a single operation. More uniform product, increased output, plus savings in time and labor can cut production costs as much as half!

Extra primary and secondary crushers are seldom required with a Williams—no extra drives or

conveyors, no costly foundations or buildings for additional crushers are necessary. Expensive maintenance, replacement parts, excessive downtime and labor are reduced to a minimum.

Learn how a Williams hammer mill can step up your output, and improve your product quality. Write—explain your operation—and ask for a catalog.

WILLIAMS PATENT CRUSHER & PULVERIZER CO.
2706 N. 9th St. St. Louis 6, Mo.



WILLIAMS
CRUSHERS GRINDERS SHREDDERS
Oldest and Largest Manufacturers of Hammer Mills in the World

Inventory of Exhibitors

Name of Exhibitor	Booth No.	Name of Exhibitor	Booth No.
Norcross Corp., 247 Newtonville Ave., Newton 58, Mass.	443	*Philadelphia Gear Works, Inc., G St. below Erie Ave., Philadelphia 34, Pa.	164
*Norcross, Sterling E., Kem-Feed Div., 19 Osborne St., Bloomfield, N. J.	1372	Meet Philadelphia power-transmission experts to find out how to get optimum fluid mixing performance. Also inquire how to obtain trouble-free mixer operation.	
Nordstrom Valve Div., Rockwell Mfg. Co., 400 N. Lexington Ave., Pittsburgh 8, Pa.	843	Philadelphia Pump Div. of American Meter Co., 13500 Philmont Ave., Philadelphia 16, Pa.	150
North Co., The H. W., 305 Comer Bldg., Birmingham, Ala.	1216	Photovolt Corp., 95 Madison Ave., New York 16, N. Y.	389
North American Aviation, Inc., Rocketdyne Div., International Airport, Los Angeles 45, Calif.	1447, 1449	Pick Mfg. Co., Water Heater Div., West Bend, Wis.	1341
*Norton Co., 1 New Bond St., Worcester 6, Mass.	1289, 1291	Pioneer-Central Div., Bendix Aviation Corp., Davenport, Iowa	1440
Catalyst carriers; high purity refractories for high temperature processing; porous ceramic tubes and plates, plus laboratory ware and electrochemicals.		*Pioneer Div., Scott & Williams, Inc., Laconia, N. H.	1146
Nukem Products Corp., Buffalo 20, N. Y.	1072	Pittsburgh Corning Corp., One Gateway Center, Pittsburgh 22, Pa.	1239
O			
Oil & Gas Div., Great Lakes Carbon Corp., 18 East 48th St., New York 17, N. Y.	204	Plate & Welding Div., General American Transportation Corp., 135 S. La Salle St., Chicago 90, Ill.	436, 442
Okadee Co., The, 332 So. Michigan Ave., Chicago 4, Ill.	1386	Platecoil Division Tranter Mfg. Inc., Lansing, Mich.	1206, 1208, 1210
Omega Machine Co., 345 Harris Ave., Providence 1, R. I.	660	Pocono Fabricators Inc., 105 Warren St., East Stroudsburg, Pa.	188, 215
Orangeburg Mfg. Co., Inc., 488 Madison Ave., New York 22, N. Y.	1388	Podbielniak, Inc., 341 E. Ohio St., Chicago 11, Ill.	595
Overstrom & Sons, 2213 West Mission Road, Alhambra, Calif.	996	Popper & Sons, Inc., 300 Fourth Ave., New York 10, N. Y.	864
P			
Pacific Valves, Inc., 3201 Walnut Ave., Long Beach 7, Calif.	1315, 1317	*Porter Co., Inc., H. K., W-S Fittings Div., P. O. Box 95, Roselle, N. J.	1195, 1197
Packed Column Corp., 30 Church St., New York 7, N. Y.	1018	Potter Aeronautical Corp., P. O. Box 532, Route 22, Union, N. J.	396
Palo Laboratory Supplies, Inc., 81 Reade St., New York 7, N. Y.	385	Potter & Rayfield, Inc., Stainless Steel Tank Div., Atlanta, Ga.	1341
Pangborn Corp., Hagerstown, Md.	681	*Potts Co., Horace T., Speedline Stainless Steel Fittings Div., Erie Ave. & D St., Philadelphia 34, Pa.	980
Paquet & Co., M., 17 Battery Pl., New York 4, N. Y.	1096	Complete line of fittings designed for use with Stainless 5 and 10 stainless pipe. Exclusive "tangential" feature simplifies assembly, reduces installation time.	
Parker-Hannifin Corp., The, 17325 Euclid Ave., Cleveland 12, Ohio	431	*Powell Co., The Wm., 2503-31 Spring Grove Ave., Cincinnati 22, Ohio	133
Parks-Cramer Co., Fitchburg, Mass.	55	For first-hand information and advice on flow-control equipment for chemical and process industries, see the corrosion-resistant valves on display and meet Powell engineers.	
Patterson Foundry & Machine Co., The, East Liverpool, Ohio	154	*Prater Pulverizer Co., 1515 So. 55th Court, Chicago 50, Ill.	904, 906
*Patterson-Kelley Co., Inc., The, 105 Warren St., East Stroudsburg, Pa.	188, 215	The most widely accepted line of Rotary Air-lock Feeders for industry will be on display, along with the new 14 x 20 blow-thru model. Engineers available for consultation.	
Peabody Engineering Corp., 232 Madison Ave., New York 16, N. Y.	979	Precision Chemical Pump Corp., 1396 Main St., Waltham, Mass.	1198
Peerless Mfg. Co., Walnut Hill Lane at Old Denton Road, P. O. Box 13165, Dallas, Texas.	1008	Precision Scientific Co., 3737 W. Cortland St., Chicago 47, Ill.	370, 372
Peerless Pump Div., Food Machinery & Chemical Corp., 301 West Ave., Twenty Six, Los Angeles 31, Calif.	831	Pressed Steel Tank Co., 1445 South 66th St., Milwaukee 14, Wis.	631
Pennsylvania Fluorocarbon Co., Inc., 1115 No 38th St., Philadelphia 4, Pa.	969	Pressure Products Industries, Inc., Hatboro, Pa.	1180
Perkin-Elmer Corp., The, Norwalk, Conn.	1081, 1083	Proctor & Schwartz, Inc., Seventh St. & Tabor Road, Philadelphia 20, Pa.	684
Perlite Dept. Great Lakes Carbon Corp., 612 S. Flower St., Los Angeles 17, Calif.	204	Productive Equipment Corp., 2926 W. Lake St., Chicago 12, Ill.	224
Petrometer Corp., 43-22 10th St., Long Island City 1, N. Y.	1384	Progressive Architecture, 430 Park Ave., New York 22, N. Y.	86
*Pfaudler Co., The, A Division of Pfaudler-Permutit Inc., 1000 West Ave., Rochester 3, N. Y.	110, 141	Proportioners, Inc., 345 Harris Ave., Providence 1, R. I.	660
New "R" series glassed-steel reactor. Wiped film evaporator, entrifuge, dryer blender-all operating. Stainless quick delivery heat exchanger, demineralizer, and colloid mill.		*Protectosol Co., The, 1920 South Western Ave., Chicago 8, Ill.	1286
		*Pulva Corp., 550 High St., Perth Amboy, N. J.	220
		See our booth at the Chemical Industries Exposition at the N. Y. Coliseum Dec. 2-6. You will find new ideas and products and men qualified to help you with your problems.	
		Presenting a new conception in dust collection—the first major advance in that field in a decade. Showing how Pulverizers and Feeders fit into the processing picture.	

*For more information see advertisement in this issue. Chemical Engineering advertisers listed in bold face type.

NEW



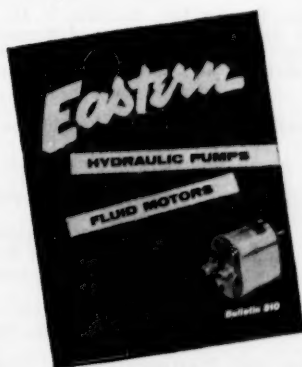
129 Hydraulic Pump and Motor Combinations

Here are power sources for any hydraulic application. Commercial, military, and aviation research have developed this array of standard pump and motor combinations.

With a performance range from .1 to 5 G.P.M. at pressures to 2000 P.S.I., you can expect a stock power source that fits your requirements. Many types of motors offer a choice of electrical characteristics, and have drip-proof, totally enclosed, or explosion-proof enclosures as required.

Typical uses are hydraulic power for machine tools, automatic door openers, material handling equipment, and thousands of other applications requiring smooth, dependable hydraulic power.

When you need custom equipment, call on Eastern and discover how this adaptable line of hydraulic pumps and motors fills the bill without research expense by you.



brand new bulletin ready!

Gives full performance data on pump and motor combinations. Write today for your copy of Bulletin 810-A.



26TH EXPOSITION OF CHEMICAL INDUSTRIES

Inventory of Exhibitors

Name of Exhibitor	Booth No.
*Pulverizing Machinery Div., Metals Disintegrating Co., Inc., Chatham Road, Summit, N. J.	632
Visit our booth at the Chemical Industries Exposition at the N. Y. Coliseum Dec. 2-6. You will find new ideas and products and men qualified to help you with your problems.	
Putman Publishing Co., 111 E. Delaware Pl., Chicago 11, Ill.	880

Q

*Quaker Oats Co., The, Chemicals Dept., Merchandise Mart Plaza, Chicago 54, Ill.	953
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R

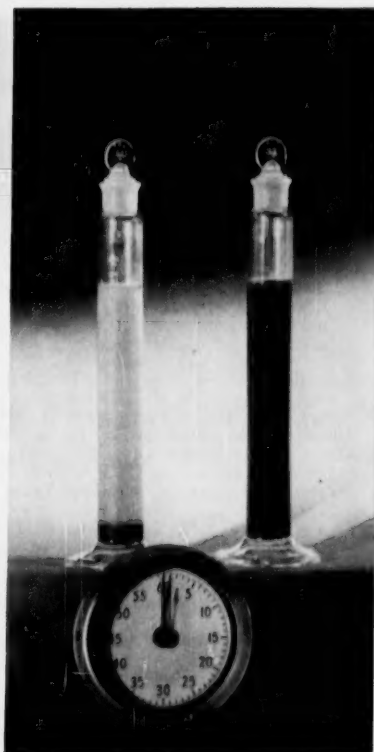
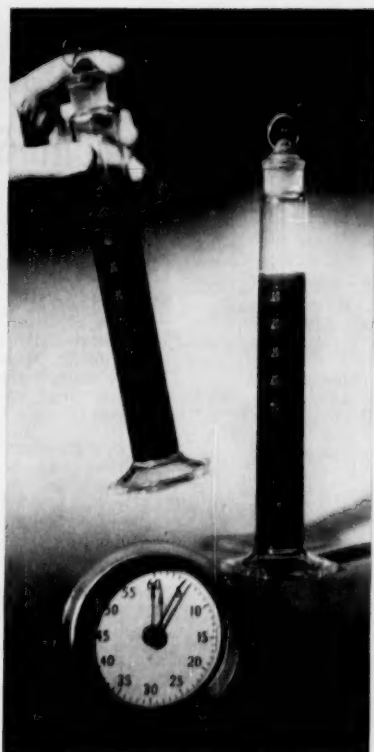
Ramo-Wooldridge Corp., P. O. Box 45215, Airport Station, Los Angeles 45, Calif.	1068, 1453
Raybestos-Manhattan, Inc., Passaic, N. J.	820
Raymond Corp., The, Greene, N. Y.	1212
*Raymond Div., Combustion Engineering, Inc., 1315 N. Brach St., Chicago 22, Ill.	646
Reaction Motors, Inc., Ford Road, Denville, N. J.	1435
Read Standard, A Div. of Capitol Products Corp., York, Pa.	162
Reeves Pulley Co., Div. of Reliance Electric & Engineering Co., 1225 Seventh St., Columbus, Ind.	1285, 1287
Reinhold Publishing Corp., 430 Park Ave., New York 22, N. Y.	86
Reliance Electric & Engineering Co., 24701 Euclid Ave., Cleveland 17, Ohio	1285, 1287
Rem-Cru Titanium, Inc., Midland, Pa.	1259, 1261, 1263
*Renneburg & Sons Co., Edw., 2639 Boston St., Baltimore 24, Md.	1078
For an entirely new and different concept in the drying and cooling of chemicals . . . be sure to see the revolutionary DehydrO-Mat on display at Renneburg booth.	
Republic Lead Equipment Co., Cleveland, Ohio.	111
Republic Seitz Filter Corp., 17 Stone St., Newark 4, N. J.	977
Republic Steel Corp., Republic Bldg., Cleveland 1, Ohio	68
Research Controls, 7900 East 11th St. (Box 5035) Tulsa, Okla.	1186
Resistoflex Corp., Woodland Road, Roseland, N. J.	889, 891
Reynolds Metals Co., 2500 So. 3rd St., Louisville 1, Ky.	1348, 1367, 1369
Rheem Mfg. Co., 1701 West Edgar Road, Linden, N. J.	808, 810
Richardson Scale Co., Clifton, N. J.	1151, 1153
Richmond Mfg. Co., Lockport, N. Y.	445
Rietz Mfg. Co., Box 690, West Chester, Pa.	1231
Robbins & Myers, Inc., Moyno Pump Div., Springfield, Ohio	1254
Robertshaw-Fulton Controls Co., Instrument Div., 2920 N. 4th St., Philadelphia 33, Pa.	1366, 1368
Rochester Mfg. Co., Inc., 100 Rockwood St., Rochester 10, N. Y.	943
Rocket Engine Section, Flight Propulsion Laboratory Dept., AGT Div., General Electric Co., Cincinnati 15, Ohio	1430
Rockwell Mfg. Co., 400 N. Lexington Ave., Pittsburgh 8, Pa.	843

*For more information see advertisement in this issue. Chemical Engineering advertisers listed in bold face type.

Name of Exhibitor	Booth No.
Rockwood Sprinkler Co., 38 Harlow St., Worcester 5, Mass.	1296, 1298
*Ross & Son Co., Inc., Charles, 148-156 Classon Ave., Brooklyn 5, N. Y.	983
Roth Co., Roy E., 2420 Fourth Ave., Rock Island, Ill.	123
Ruggles-Coles Engineering Co., 240 Arch St., York, Pa.	582

S

Sadtler Research Laboratories, 1517 Vine St., Philadelphia 2, Pa.	1303
*Safety Industries, Inc., P. O. Box 904, New Haven 4, Conn.	645
Saran Lined Pipe Co., 2415 Burdette Ave., Ferndale, Mich.	913
*Sarco Company, Inc., 635 Madison Ave., New York 12, N. Y.	163
Stop and talk with experienced Sarco application engineers for efficient, economical, and tested solutions to steam trapping and temperature control problems in chemical processing.	
*Sargent's Sons Corp., C. G., Graniteville, Mass.	1375, 1377
Meet our drying research engineers and discuss your drying problems with them. They're highly experienced specialists in drying research for the process industries.	
Seam Instrument Corp., 1811 West Irving Park Dr., Chicago, Ill.	1349, 1351
Schnieg Industries, Inc., 26-40 Jackson Ave., Long Island City 1, N. Y.	1215
Schutte & Koerting Co., Cornwells Heights, Bucks County, Pa.	61
Schutz-O'Neill Co., 307 Portland Ave., Minneapolis 15, Minn.	838
Scientific Development Co., Box 795, State College, Pa.	382
Scientific Glass Apparatus Co., Inc., 100 Lakewood Terrace, Bloomfield, N. J.	332
Scientific Industries, Inc., 15 Park St., Springfield 5, Mass.	1293
*Scott & Williams, Inc., Pioneer Div., Laconia, N. H.	1146
Bring your high pressure pumping and homogenization problems to us. We specialize in handling sanitary, abrasive and corrosive liquids at high pressure.	
Sealor Corp., Warwick Industrial Park, Providence 5, R. I.	1102
Seavy & Sons, M. J., 30 Church St., New York 7, N. Y.	1071
Selas Corp. of America, Dresher, Pa.	973, 975
*Sel-Rex Corp., 75 River Road, Nutley 10, N. J.	985
See our booth at the Chemical Industries Exposition at the N. Y. Coliseum Dec. 2-6. You will find new ideas and products and men qualified to help you with your problems.	
Separations Engineering Corp., 110 East 42nd St., New York 17, N. Y.	996
Sharples Corp., The, 2300 Westmoreland St., Philadelphia 40, Pa.	485
Exhibiting three new centrifuges—a high capacity vertical decanter-type; a high capacity nozzle-type; and a high speed horizontal decanter. Many other items also	
Sheldon Equipment Co., E. H., Muskegon, Mich.	336



Demonstration: Add Separan 2610 . . . mix . . . in a few seconds, solids settle . . . compare with untreated solids.

New flocculating agent Separan 2610 clears process and waste water in record time

New flocculant proves to be faster and more economical answer to many old problems in process water and waste treatment operations. Separan 2610® speeds up settling and filtration rates . . . brings many other improvements to liquid-solid separations!

PROVEN APPLICATIONS

Process water treatment—improves throughput and performance in hot and cold lime softeners, chemical flocculation units!

Sewage—speeds dewatering of digested elutriated sewage sludge!

Oily waste disposal—improves floc blanket flotation on refinery water effluent flotation unit!

Foundry waste—reduces stream pollution and provides cleaner recycle water!

Pulp & paper waste—increases solids recovery, lowers sewer loss!

Coal washing—improves fines recovery, increases throughput of settling unit!

Electroplating—settles solids in combined cyanide, chrome and acid wastes; speeds filtering!

Chemical wastes—improves solids recovery; less material loss!

EXAMPLES OF RESULTS

Separan 2610 was applied at 0.25 ppm to a cold lime softener supplying cooling tower make-up water. The sludge blanket became stabilized, effluent turbidity was reduced from an average 10 ppm to less than 5 ppm, and the unit operates more efficiently. Flocculant savings with Separan 2610 exceed \$110 per month on a throughput that averages 900 gpm.

Another plant uses Separan 2610 in dewatering of digested elutriated sewage sludge on vacuum filters. This application has brought a 24% increase in filter capacity and a 20% reduction

in total chemical flocculant cost.

In oil refineries, similar improvements are being experienced in flotation units for clarification of combined oily wastes. By adding 0.5 ppm Separan 2610, along with alum, to waste water in a flotation unit, plants have improved floc blanket stability and reduced the oil content of the effluent.

MANY APPLICATIONS HAVE BEEN TESTED

Separan 2610 has shown excellent results in many waste and process water applications. It is an organic flocculating aid that is easy to prepare and apply, noncorrosive, and that presents no hazard in normal handling and industrial use. Samples and technical assistance are available by writing us. For further data, request one of our new booklets on Separan 2610 in "Waste and Sewage", "Water Treatment", "Coal Industry", or "Pulp and Paper". THE DOW CHEMICAL COMPANY, Midland, Michigan, Dept. SC1321 L.

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Inventory of Exhibitors

Name of Exhibitor	Booth No.
*Shriver & Co., Inc., T. Harrison, N. J.	473
See how a vertical leaf filter is used with fabric filter media for cake recovery. Improved diaphragm pump with drainage provision. Also new materials of construction.	
Sier-Bath Gear & Pump Co., Inc., 9252 Hudson Blvd., North Bergen, N. J.	806
Sigmamotor, Inc., 3 North Main St., Middleport, N. Y.	1099
Simplicity Engineering Co., Durand, Mich.	804
Simpson Mix-Muller Div., National Engineering Co., 549 W. Washington Blvd., Chicago 6, Ill.	675
Sly Mfg. Co., The W. W., 4700 Train Ave., Cleveland 1, Ohio	73
Smico, Inc., 500 N. MacArthur Blvd., Oklahoma City, Okla.	1281
Smith Corp., A. O., Milwaukee 1, Wis.	596
*Smith Co., The T. L., 2835 N. 32nd St., Milwaukee 1, Wis.	986
See the Smith Turbine Type Mixer with its revolutionary new mixing principle. Blends to theoretical specifications in a fraction of the time needed by conventional mixers.	
Snyder Tool & Engineering Co., Arthur Colton Co. Div., 3400 E. Lafayette Ave., Detroit 7, Mich.	50
Sonic Engineering Corp., 146 Selleck St., Stamford, Conn.	1122
Sorval, Inc., Ivan, Pearl St., Norwalk, Conn.	1085
Southwestern Engineering Co., 4800 Santa Fe Ave., Los Angeles 58, Calif.	1250, 1252
*Sparkler Mfg. Co., 169 North Lake St., Mundelein, Ill.	56
Displaying the new model RSC filter—self-cleaning and featuring the screw conveyor discharge of heavy solids, wet or semidry without opening filter. Also regular filter models.	
*Speedline Stainless Steel Fittings Div., Horace T. Potts Co., Erie Ave. & D St., Philadelphia 34, Pa.	980
Sperry & Co., D. R., Batavia, Ill.	1362
*Spraying Systems Co., 3201 Randolph St., Bellwood, Ill.	914
See Spraying Systems Co.'s complete display and information on spray nozzles for use in chemical processing and general plant operations.	
*Sprout, Waldron & Co. Inc., Muncy, Pa.	844, 846, 848
Bring your processing problems to the Sprout, Waldron booths for expert engineering guidance and complete details about Sprout, Waldron's full lines of processing industries equipment.	
Standard Scientific Supply Corp., 808 Broadway, New York 3, N. Y.	1131
Standard Steel Corp., 5001 South Boyle Ave., Los Angeles 58, Calif.	153
Stanford Glassblowing Laboratories, 971 Commercial St., Palo Alto, Calif.	1071
Star Tank & Filter Corp., 871 Edgewater Road, New York 59, N. Y.	233
Steel & Tubes Div., Republic Steel Corp., Cleveland, Ohio	68
Steiner-Ives Co., Springfield Road, Union, N. J.	1381
Stephens-Adamson Mfg. Co., Aurora, Ill.	1039
Sterling, Fleischman Co., P. O. Box 94, Broomall, Pa.	1077
Sticht Co., Herman H., Inc., 27 Park Place, New York 7, N. Y.	1104
Stoffel Seals Corp., Tuckahoe, N. Y.	1257
Stokes Corp., F. J., 5500 Tabor Road, Philadelphia 20, Pa.	38, 67
Strahman Valves, Inc., 16 Hudson St., New York 13, N. Y.	815
Straight Line Filters, Inc., Christina Ave., Wilmington, Del.	1370

Name of Exhibitor	Booth No.
Strata Products Dept., Great Lakes Carbon Corp., 12235 Robin Blvd., Houston 1, Tex.	204
Strong-Scott Mfg. Co., The, 451 Taft St. N.E., Minneapolis 13, Minn.	1138, 1142, 1144
*Sturtevant Mill Co., Park & Clayton Sts., Dorchester, Boston 22, Mass.	421
Get micron-grinding, blending, air separation and other dry process information at our booth, or write for new Dry Processing Equipment Catalog.	
Superior Electric Co., The, Bristol, Conn.	811
*Superior Separator Co., Process Machinery Div., Hopkins, Minn.	1108
On display will be the Superior "Fluidizer" conveying system and a complete line of accessories including a unique engineered "Center-Point" control panel.	
Surprenant Mfg. Co., 172 Sterling St., Clinton, Mass.	1428
Sutton, Steele & Steele, Inc., 1031 South Haskell, Dallas 23, Tex.	996
Swenson Evaporator Co., Div. of Whiting Corp., Harvey, Ill.	85
Synthetic Mica Corp., Subsidiary of Mycalex Corp. of America, 125 Clifton Blvd., Clifton, N. J.	948
Syntroon Co., Homer City, Pa.	93

T

Tall Oil Div. of the Pulp Chemicals Assn., 122 East 42nd St., New York 17, N. Y.	933
Tank Car Div., General American Transportation Corp., 135 S. La Salle St., Chicago 90, Ill.	436, 442
Tank Storage Div., General American Transportation Corp., 135 S. La Salle St., Chicago 90, Ill.	436, 442
Taylor Forge & Pipe Works, P. O. Box 485, Chicago 90, Ill.	1030
Taylor Instrument Cos., 95 Ames St., Rochester 1, N. Y.	104
*Taylor, Stiles & Co., Riegelsville, N. J.	1357
Technicon Co., The, Chauncey, N. Y.	316
Terriss Div., Consolidated Siphon Supply Co., Inc., 22-24 Wooster St., New York 13, N. Y.	1329, 1331
Thayer Scale Corp., Pembroke, Mass.	1350, 1352
Thermo Electric Co., Inc., Rochelle Park Post Office, Saddle Brook, N. J.	1111
Thermon Mfg. Co., 1017 Rosine, P. O. Box 1961, Houston 1, Tex.	1207
Thiokol Chemical Corp., Trenton 7, N. J.	1442, 1444
Thomas Flexible Coupling Co., Main Ave. & Biddle St., Warren, Pa.	1127
Thompson Fiber Glass Co., H. I., 1733 Cordova St., Los Angeles 7, Calif.	1445
Thropp & Sons, Wm. R., Div. of J. M. Lehmann Co., Inc., 550 New York Ave., Lyndhurst, N. J.	1205
Titanium Alloy Mfg. Div., National Lead Co., 111 Broadway, New York 6, N. Y.	234
Toledo Scale Co., Toledo 13, Ohio	157
*Tolhurst Centrifugals Div., American Machine and Metals, Inc., East Moline, Ill.	506
First showing anywhere—Tolhurst's new Batch-O-Matic centrifugal. It is a center-slung machine with bottom unloading and automatic operation.	
Torsion Balance Co., The, Clifton, N. J.	328
Tote System, Inc., 700 South 7th St., Beatrice, Neb.	990, 992
Tranter Mfg., Inc., Platecoil Div., Lansing, Mich.	1206
	1208, 1210
Trent, Inc., 201-299 Leverington Ave., Philadelphia 27, Pa.	195
Trerice Co., H. O., 1420 W. Lafayette Blvd., Detroit 16, Mich.	1155, 1157
*Tri-Clover Div., Ladish Co., Kenosha, Wis.	1292, 1294

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26TH EXPOSITION OF CHEMICAL INDUSTRIES

Inventory of Exhibitors

Name of Exhibitor	Booth No.
Tri-Homo Corp., 90 Highland Ave., Salem, Mass.	214
*Trinity Equipment Corp., 472 E. Westfield Ave., Roselle Park, N. J. and Cortland, N. Y.	1392
Tripard Mfg. Co. Inc., 38 Murray St., New York 7, N. Y.	1251
Trojan Electric & Machine Co., Inc., 232 Russell St., Brooklyn 24, N. Y.	1394
Troy Engine & Machine Co., Troy, Pa.	882
Truscon Steel Co., Youngstown, Ohio	68
Tube Turns, A Div. of National Cylinder Gas Co., 224 East Broadway, Louisville 1, Ky.	98
*Tube Turns Plastics, Inc., 2928 Magazine St., Louisville 11, Ky.	98
Turbo Mixer Div., General American Transportation Corp., 380 Madison Ave., New York 17, N. Y.	436, 442
Tyler Co., The W. S., 3615 Superior Ave., Cleveland 14, Ohio	574

U

Uehling Instrument Co., 473 Getty Ave., Paterson 3, N. J.	364
*Union Carbide Corp., 30 East 42nd St., New York 17, N. Y.	460
Union Drawn Steel Div., Republic Steel Corp., Cleveland, Ohio	68
Union Process, 120 Ash St., Akron, Ohio	1307
Union Steel Corp., Union, N. J.	840
United States Borax & Chemical Corp., 50 Rockefeller Plaza, New York 20, N. Y.	928
U. S. Electrical Motors Inc., 200 East Slauson Ave., Los Angeles 54, Calif.	837
United States Filter Co., 1910 N. Potrero Ave., El Monte, Calif.	1112, 1114
United States Gasket Co., 600 N. 10th St., Camden 1, N. J.	21
*United States Steel Corp., 525 William Penn Pl., Pittsburgh 30, Pa.	495
United States Stoneware Co., The, 60 East 42nd St., New York 17, N. Y.	111
Five new items, including a three-part corrosion-resistant painting system and a coating system, two tower distributors, plus the new Metal Pall Ring, will be shown.	

V

Vac-U-Max, 1 Montgomery St., Belleville 9, N. J.	1342
Van Nostrand Co., Inc., D., 120 Alexander St., Princeton, N. J.	866
Vanton Pump & Equipment Corp., Div. of Cooper Alloy Corp., 201 Sweetland Ave., Hillside, N. J.	103
Velan Steam Specialties Inc., 37 So. River St., Plattsburg, N. Y.	1300
Velan Valve Corp., 37 So. River St., Plattsburg, N. Y.	1300
Vibra Screw Co., 1 Montgomery St., Belleville, N. J.	1363
Victor Chemical Works, 155 North Wacker Drive, Chicago 6, Ill.	936, 938, 940, 963
*Vogt Machine Co., Henry, 1000 W. Ormsby St., Louisville 10, Ky.	124
*Voss Co. Inc., J. H. H., 785 East 144th St., New York 54, N. Y.	1354, 1356
See the display of J. H. H. Voss Mfg. Co.'s valves for all types of reciprocating compressors at Chem Show exhibit.	

W

W-S Fittings Div., H. K. Porter Co., Inc., P. O. Box 95, Roselle, N. J.	1195, 1197
See our booth at the Chemical Industries Exposition at the N. Y. Coliseum Dec. 2-6. You will find new ideas and products and men qualified to help you with your problems.	
Walker, Crossweller & Co. Ltd., England	1343

Name of Exhibitor	Booth No.
Wall Colmonoy Corp., 19345 John R Street, Detroit 3, Mich.	1226, 1228
Wall-Derkiss, Inc., 575 Linden Ave. East, Linden, N. J.	1226, 1228
Wall Gases, Inc., Bristol Pike, Morrisville, Bucks County, Pa.	1226, 1228
Wallace & Tiernan Inc., 25 Main St., Belleville 9, N. J.	445
*Walworth Co., 60 East 42nd St., New York 17, N. Y.	26
See our booth at the Chemical Industries Exposition at the N. Y. Coliseum Dec. 2-6. You will find new ideas and products and men qualified to help you with your problems.	

Warren Pumps Inc., Warren, Mass.	1277, 1279
Warrick Co., Charles F., Berkley, Mich.	1343
Watertown Div., The New York Air Brake Co., Watertown, N. Y.	884, 886
Welch Mfg. Co., W. M., 1515 Sedgwick St., Chicago 10, Ill.	205
Welding Fittings Corp., New Castle, Pa.	805
West Instrument Corp., 4363 W. Montrose Ave., Chicago 41, Ill.	1353
West Virginia Pulp & Paper Co., Industrial Chemical Sales Div., 230 Park Ave., New York 17, N. Y.	924
*Westvaco Chlor-Alkali Div., Food Machinery & Chemical Corp., 161 East 42nd St., New York 17, N. Y.	1436
Westinghouse Electric Corp., 3 Gateway Center, P. O. Box 2278, Pittsburgh 30, Pa.	510
Wheelabrator Corp., Mishawaka, Ind.	46
*Wheelco Instruments Div., Barber-Colman Co., Rockford, Ill.	1374
Whiting Corp., Swenson Evaporator Co. Div., Harvey, Ill.	85
Whitlock Mfg. Co., The, West Hartford 10, Conn.	1181
Wiegand Co., Edwin L., 7500 Thomas Blvd., Pittsburgh 8, Pa.	850
Wiggins Gasholder Div., General American Transportation Corp., 135 S. La Salle St., Chicago 90, Ill.	436, 442
Wiggins Vapor Seals Div., General American Transportation Corp., 135 S. La Salle St., Chicago 90, Ill.	436, 442
Will Corp. and Subsidiaries, Inc., Rochester 3, N. Y.	395
*Williams Patent Crusher & Pulverizer Co., 2701-2723 North Broadway, St. Louis 6, Mo.	161
Williams will feature a transparent plastic working model of a Mechanical Air Separator. They also will have an actual conversion size 220 Slugger and Pulverizing Machine.	

Wilson, Inc., Thomas C., 21-11 44th Ave., Long Island City 1, N. Y.	941
Wolf Co., The, Chambersburg, Pa.	1281
*Worthington Corp., Harrison, N. J.	695
Visit Doctor P. Q. (Pump Quotient) at our booth. He'll answer any of your pumping problems. See a Worthington pump in action. Get the facts on our line of pumps.	

Y

Yarnall-Waring Co., Chestnut Hill, Philadelphia 18, Pa.	64
York Corp., York, Pa.	893, 895, 897
*York Co., Inc., Otto H., 6 Central Ave., West Orange, N. J.	69
See our booth at the Chemical Industries Exposition at the N. Y. Coliseum Dec. 2-6. You will find new ideas and products and men qualified to help you with your problems.	

Young Radiator Co., Racine, Wis.	1160, 1162
Yuba Consolidated Industries, Inc., 351 California St., San Francisco 4, Calif.	858, 860

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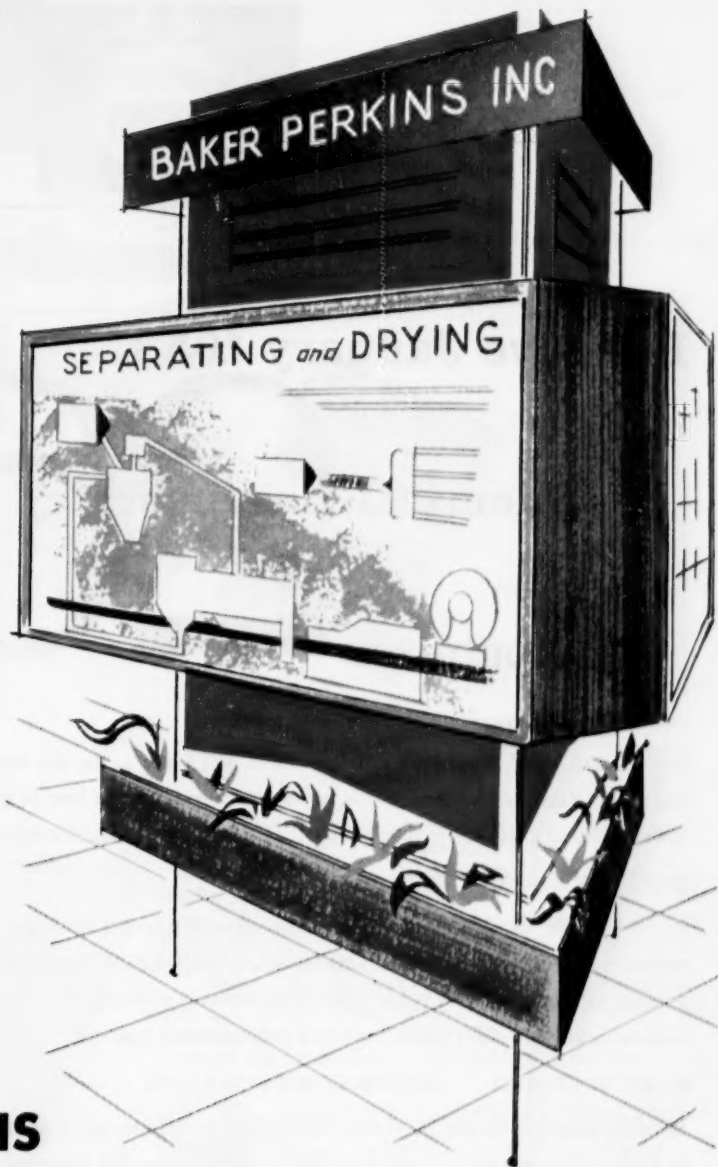
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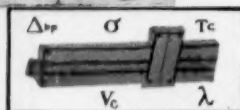
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Inventory of Products Exhibited

26TH EXPOSITION OF CHEMICAL INDUSTRIES

New York Coliseum

December 2-6, 1957

ABRASIVES

*Norton Co.	1289-1291
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*Knight, Maurice A.	586
Packed Column Corp.	1018
Peabody Engineering Corp.	979
U. S. Stoneware Co., The	111
West Virginia Pulp and Paper Co., Industrial Chemical Sales Div.	926

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Callery Chemical Co.	918-920
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*Dean Thermo-Panel Coil Div., Dean Products, Inc.	184
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*Quaker Oats Co., The, Chemicals Dept.	953
Victor Chemical Works	936-938- 940-963
Will Corp. & Subsidiaries, Inc.	395

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*Allegheny Ludlum Steel Corp.	569
*Alloy Steel Products Co.	22
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*Duriron Co., Inc., The	520 & 432
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*Haynes Stellite Co., Div. of Union Carbide Corp.	460
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*Industrial Plastic Fabricators, Inc.	1217
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Kennametal, Inc.	1116-1137-1139- 1141-1143
Klinger, Inc., Richard	1347
Knapp Mills, Andrews-Knapp Construction Co., Inc.	175
*Knight, Maurice A.	586
Lapp Insulator Co., Inc., Process Equipment Div.	696

Lead Industries Assn.	816
Lead Lined Iron Pipe Co.	70
Luzerne Rubber Co., The	435
Mannesmann-Easton Plastic Prod- ucts Co., Inc.	1115
Metals & Controls Corp., General Plate Div.	1094
Misco Fabricators	1037
Montecatini Society Generale	952
Nalge Company, Inc., The	1106
National Carbon Co., Div. of Union Carbide Corp.	460
Nukem Products Corp.	1072
Okadee Co., The	1386
Pittsburgh Corning Corp.	1239
Raybestos-Manhattan, Inc.	820
Smith Corporation, A. O.	596
Terriss Div., Consolidated Siphon Supply Co., Inc.	1329-1331
Union Steel Corp.	840
United States Gasket Co.	21
*United States Steel Corp.	495
U. S. Stoneware Co., The	111
Will Corp. & Subsidiaries, Inc.	395

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Raybestos-Manhattan, Inc.	820
U. S. Stoneware Co., The	111

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*Dorr-Oliver Inc.	531
*Eastern Industries, Inc.	1275
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*Ertel Engineering Corp.	623
*Falcon Mfg. Div., The, The First Machinery Corp.	1174-1176
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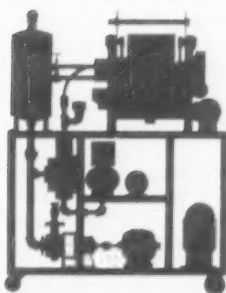
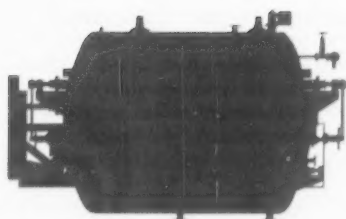
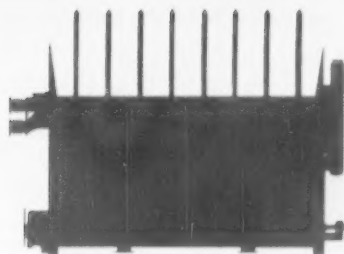
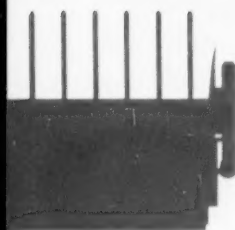
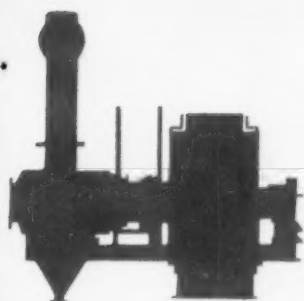
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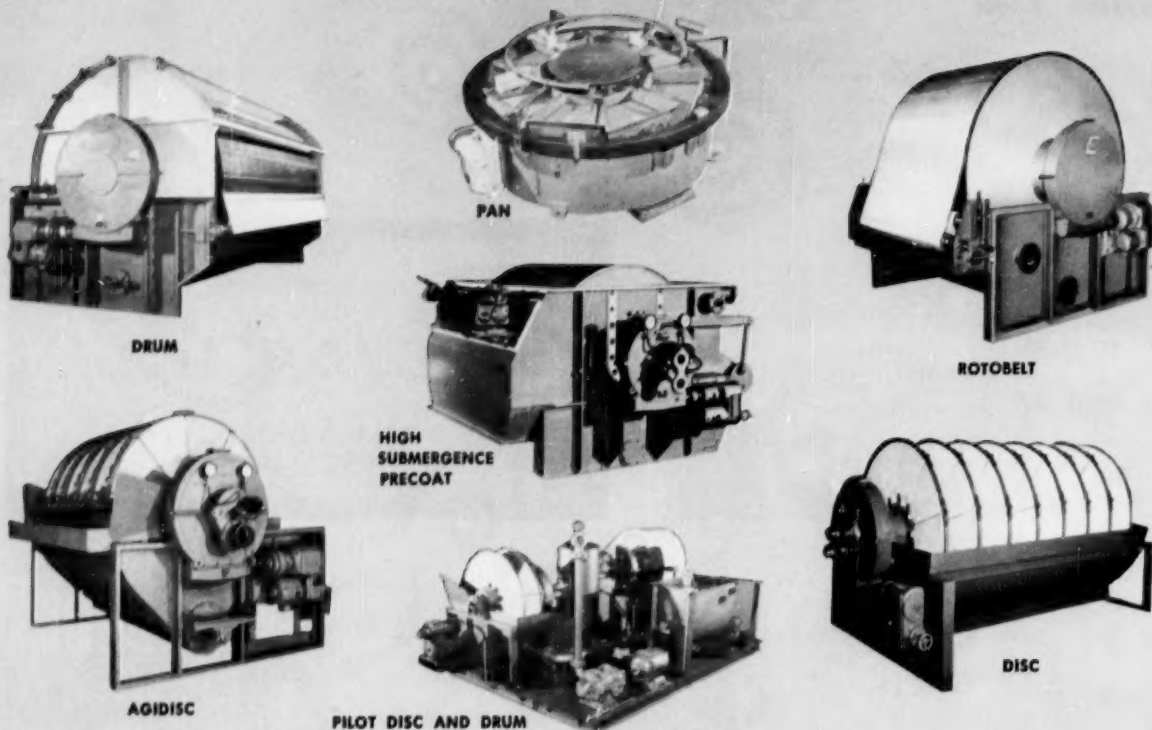
Aluminum Co. of America.....559
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**EIMCO OFFERS MORE PROCESSING EQUIPMENT THAN EVER BEFORE . . . TO
SERVE YOUR COMPLETE OPERATING NEEDS FOR SOLIDS-LIQUID SEPARATION**





Eimco Processing Equipment . . . Designed to

Integrated into a tightly woven working team, Eimco's three big divisions, Research and Development, Filters and Eimco-Process, possess a great abundance of technical know-how in modern operational methods, applications and designing for the manufacturing of modern industrial filtration and processing equipment. Where filtration is an integral part of your flow sheet, Eimco's years of practical experience and research, in the field of solids-liquid separation, is available to give practical and logical solutions to all chemical processing applications. Eimco equipment is engineered to best fit the customer's needs.

EIMCO CONTINUOUS VACUUM DRUM TYPE FILTERS

Eimco's complete line of Drum Type Filters are designed for the filtration of slurries with slow to rapid cake formation and slow to fast settling rates. Eimco Drum Type Filters are available for high or low submergence, with string, scraper, or roll discharge mechanisms. Other attachments include compression blankets, wash frames, scoring devices, compression rolls, flappers, and many other devices.

EIMCO CONTINUOUS VACUUM DISC AND AGIDISC FILTERS

Both Disc and Agidisc Filters are designed for the filtration of slurries with slow to fast cake formation and slow to fast settling rates. The agidisc filter is used where the slurry contains a wide range of particle sizes and is fast settling, with rapid cake formation. These filters are applicable to many materials filtered by drum type filters. Discs and Agidiscs have the advantage of lower floor space per square foot of filter area.

EIMCO ROTOBELT FILTER

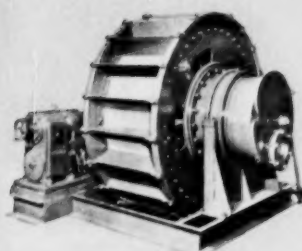
Eimco's new Rotobelt as a unit has been under test in processing plants for several years. In addition to permanent installations, Eimco's Research and Development Division has traveled experienced technologists with a portable unit to cities all over the United States, where hundreds of tests have been run. In every test the Rotobelt has shown superior performance in tonnage and dryness of cake. The Rotobelt differs from standard Drum Filters by utilizing a cloth or woven stainless steel filter medium, in belt form. Medium edges are sealed for absolute minimum vacuum requirements in cfm per sq. ft. area. Belt Cycle: 1—belt leaves drum. 2—passes on to cake discharge roller. 3—through washing compartment (filter medium is completely washed each revolution). 4—onto return rollers. 5—return to drum.

EIMCO PAN TYPE FILTERS

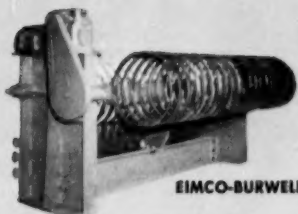
Designed for the filtration of slurries with very rapid cake formation and settling rate. The Eimco Pan Filter utilizes a combination of vacuum and gravity which speeds the liquid flow. The Eimco Pan Filter offers independent pan compartments for extremely sharp liquor separation between washes. Complete cake discharge is obtained since pan compartment tilts a full 160°. High pressure air snap blow and cover-cleaning shower arrangements are optional features available on the Eimco Pan Filters.

EIMCO PLATE AND FRAME TYPE FILTERS

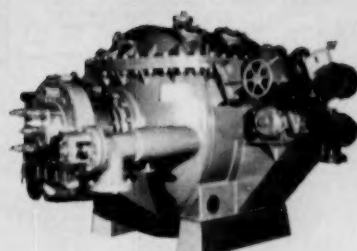
Designed for the filtration of slurries with slow to fast settling and rapid or slow cake formation. Designed



TOP FEED DEWATERER

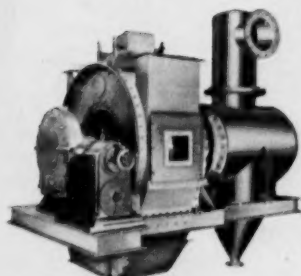
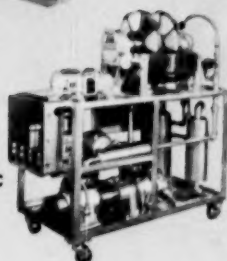


EIMCO-BURWELL

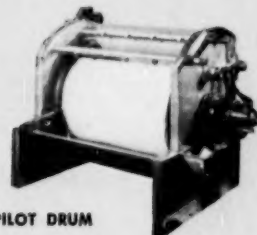


PRESSURE PRECOAT

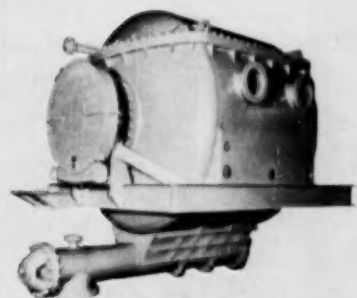
LAB DISC



TOP FEED DRYER



PILOT DRUM



CONTINUOUS PRESSURE

Meet all Problems in Solids - Liquid Separation

with two sets of circular frames, each pair mounted at 180° of each other on a common shaft. (Also available with single frames.) The Eimco-Burwell filter gives faster opening and closing of the plates on the frames; highly efficient washing, uniform cake density over entire surface of filter media, drier cakes, eliminates all down time for cleaning frames, plus many more advantages.

EIMCO TOP FEED DRYERS AND DEWATERERS

High capacity units designed to filter slurries with very fast settling and very rapid cake formation characteristics. Particularly suited for materials of a granular or crystalline nature which are difficult to filter on standard drum or disc type units. The Eimco Top Feed Dryer is designed with a streamlined hood assembly to direct a heated air flow through the cake and receiver.

EIMCO CONTINUOUS VACUUM AND PRESSURE PRECOAT FILTERS

Designed to filter slurries with normal settling and slow cake formation. Eimco Vacuum and Pressure Precoat Filters are used where very thin cakes must be discharged, or in large-scale solution clarification. Available in low or high submergence units with continuous knife advancing mechanisms.

EIMCO DRUM AND DISC PRESSURE TYPE FILTERS

Eimco Drum and Disc Type Pressure Filters are designed for the filtration of slurries with slow to rapid cake formation and normal or fast settling rates. Pressure filters are applied where temperature and vapor

pressure limitations on vacuum require pressure, or where toxic or flammable slurries require an enclosed construction, or where the pressure drop across the cake is too great for vacuum filtration. Drum type pressure filters are recommended where washing is one of the requirements. Discharge from pressure units with continuous operation is through a locking chamber.

EIMCO LABORATORY AND PILOT PLANT TYPE FILTERS

Eimco's complete line of filtration equipment includes proportional sized units suitable for laboratory work. These small units are available in 3 and 6 square foot sizes for disc units and 4 or 8 square foot sizes for drum units.

These small filters are available as laboratory "CFP" units. Complete filter plant units are cabinet style with filter mounted on top and complete operating equipment mounted in conveniently arranged style below or to the side of the filter. The unit thus built consists of vacuum pumps, blowers, receivers, filtrate pumps, electrical equipment, all wired and piped and mounted on casters so that it may be rolled to any point in the plant for test operation.

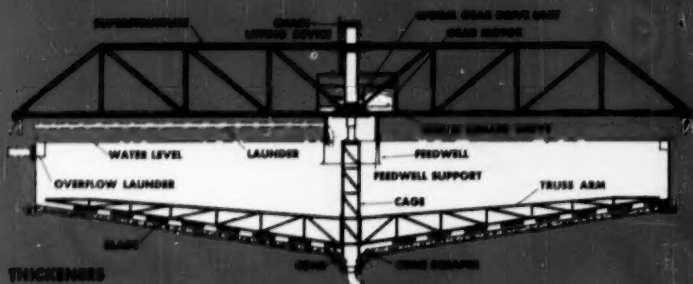
Larger size units for pilot plant operation, either drum, disc or other designs, includes filters to meet any plant requirements. These units are fully equipped and ready for operation after the necessary service connections are made.

MATERIALS OF CONSTRUCTION AND SIZES

All Eimco filters are made in a complete range of sizes (see back) and constructed with a wide variety of materials including metal, plastics, rubber and wood, depending on the customer's needs.



REACTOR-CLARIFIER



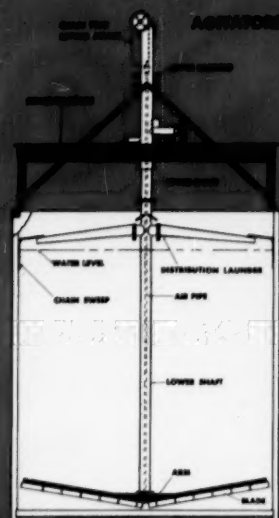
THICKENER

EIMCO-PROCESS REACTOR-CLARIFIER

Eimco Process Reactor-Clarifier mechanisms, designed with mechanical or air agitation, flocculation or sludge redistribution in the center compartment supplied in diameters up to 125 feet, are the most reliable and economical units available for water treatment, waste treatment and special flocculation-clarification services. Specific recommendations as to the size, type and materials of construction are made for each service.

EIMCO-PROCESS THICKENER

Eimco Process Thickener Mechanisms are available in sizes up to 325 feet diameter. Superstructure supported, center column and traction machines are made in wood, steel, rubber covered or stainless steel



AGITATOR

construction. Each mechanism is tailored for the required duty with balanced torque designed into every component to insure dependable trouble-free service on all pulps including the heaviest, fastest settling concentrates.

EIMCO-PROCESS AGITATOR

Eimco Process Air Lift and Mechanical Agitators are supplied for tank diameters up to 40 feet. Every machine has the same rugged construction but all specific features such as the materials of construction, air requirements, air distribution, impeller type and size and rotative speed are designed specifically for the job after a thorough analysis of the operating conditions.

AREA IN SQUARE FEET OF FILTERING SURFACE FOR PRODUCTION SIZE DISC FILTERS

Diam.	Number of Discs													
	1	2	3	4	5	6	7	8	9	10	11	12	13	14
18"	3	6												
3'0"	11.5	23	34.5	46										
4'0"	22	44	66	88	110	132								
6'0"	50	100	150	200	250	300	350	400	450	500	550	600	650	700
8'10"			330	440	550	660	770	880	990	1100	1210	1320	1430	1540
10'6"						900	1050	1200	1350	1500	1650	1800	1950	2100
12'0"							1400	1600	1800	2000	2200	2400	2600	2800

Length in Feet

Diam.	1'	2'	3'	4'	5'	6'	8'	10'	12'	14'	16'	18'	20'	24'
18"	4	8												
3'0"	9.4	18.8	28.2	37.6	47.0	56.4								
4'0"	12.5	25	37.5	50	62.5	75								
5'3"		50	67	84	100	134	167							
6'0"		57	75	94	113	151	189							
8'0"			150	200	250	300	350	400	450	500				
10'0"					314	376	440	503	565	628				
11'6"					360	432	504	576	648	720	864			
14'0"					440	528	616	704	792	880	1056			

AREA IN SQUARE FEET OF FILTERING SURFACE FOR PRODUCTION SIZE DRUM FILTERS

PAN FILTERS IN SQUARE FEET OF FILTER AREA AS FOLLOWS: 10, 25, 60, 90, 120, 150, 180, 210, 240 and larger

EIMCO FILTER MEDIA

Eimco Filter Media Division stocks many synthetic and natural fibers woven into numerous patterns to produce an infinite selection of media to answer any filtration requirement.

RENTAL TEST EQUIPMENT

Eimco also has a number of test filters of various sizes and designs which are available for rental service in the user's plant. An Eimco filtration engineer will be glad to talk over your filtration problem

with you and suggest the proper unit for your test work.

TEST FOR FILTERABILITY

Eimco's Research and Development Center also maintains an extensive testing department devoted exclusively to the determination of filter requirements for those legitimately in the processing business. For instructions in sending samples for analysis or research, write Research and Development Center, The Eimco Corporation, 301 South Hicks Road, Palatine, Illinois.



THE EIMCO CORPORATION
SALT LAKE CITY, UTAH

Research and Development Division, Palatine, Illinois
Export Office: Eimco Building, 51-53 South Street, New York 2, N. Y.
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Patterson Foundry & Machine Co., The	154
United States Stoneware Co., The	111

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*Cherry-Burrell Corp.	984
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DeLaval Separator Co., The	1211-1213
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Entoleter Div., Safety Industries, Inc.	645
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*Fletcher Works, Inc.	459
General Laboratory Supply Co.	310
*Pfaudler Co., The, Div. of Pfaudler Permutit, Inc.	110, 141
*Podbielniak, Inc.	595
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Scientific Glass Apparatus Co., Inc.	332
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Smico, Inc.	1281
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York Corp., Industrial Div.	893-895-897

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Lead Industries Assn.	816
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Reynolds Metals Co.	1348, 1367-1369
Synthetic Mica Corp., Subsidiary of Mycalex Corp. of America	930
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United States Stoneware Co., The	111

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The COMPLETE LINE of NEW FALCON EQUIPMENT

Will Be Exhibited

at the

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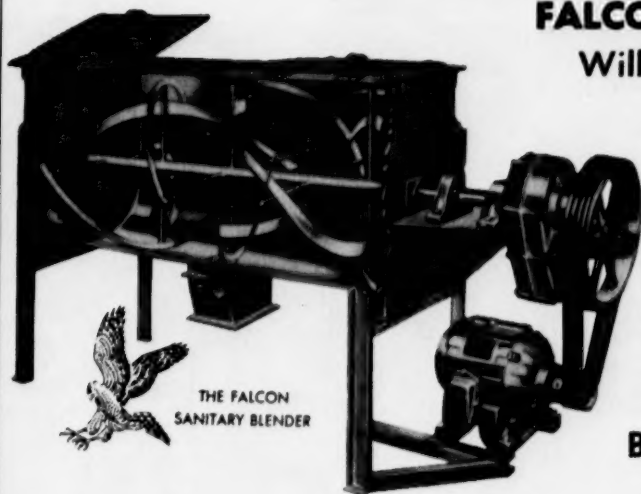
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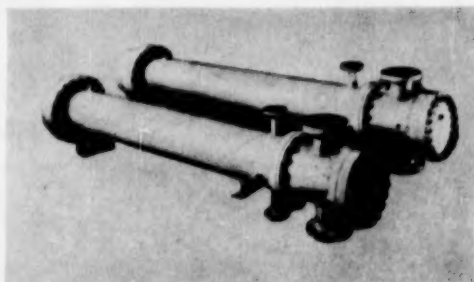
It is approved sanitary by Municipal Authorities. It is leak proof and dust-tite with a special plug type discharge. All joints are smooth welded, all surfaces are smooth, no projections, bolts or screws to hold previously mixed material. Ribbon assembly quickly and easily removed for cleaning. Made in all sizes . . . Stainless or Mild Steel.



Heavy Duty REACTORS fabricated to your specifications with dimpled or standard jackets; all types of agitators and dryers. Let FMC quote you on your needs.



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AGITATORS



HEAT EXCHANGERS — CONDENSERS
IN ALL METALS



STAINLESS KETTLES
With or without Agitators

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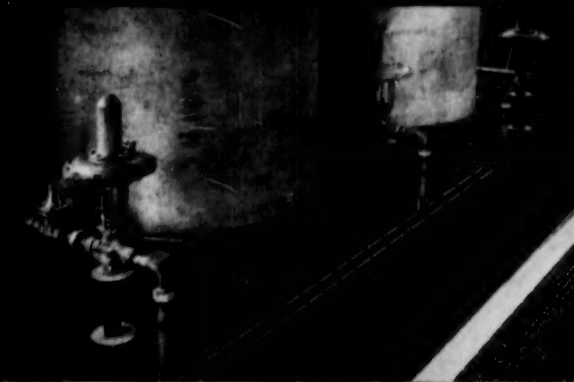
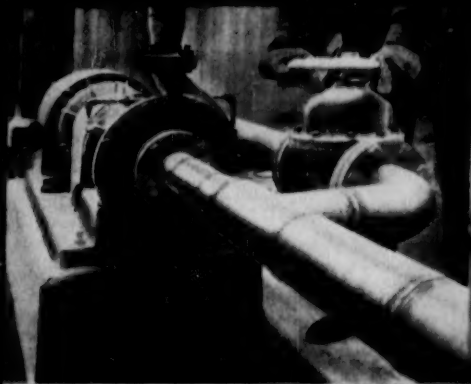
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Real Pipeline Economy Begins AT THE FITTINGS



For complete details on how the complete line of Speedline Corrosion Resistant Fittings and low cost, light wall stainless pipe can cut your process piping costs . . . write for your copy of illustrated "Speedline Fittings" brochure without obligation.



Speedline

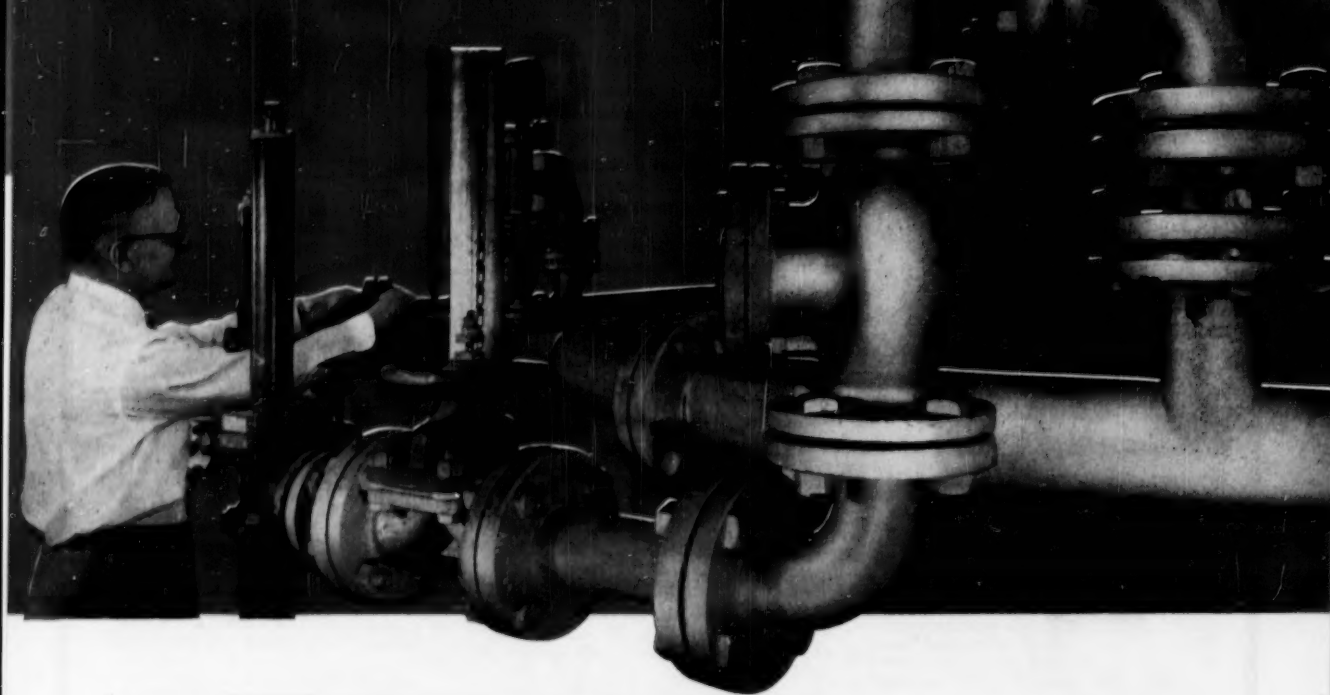
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Manufactured by **HORACE T. POTTS COMPANY** • 500 E. Erie Avenue • Philadelphia 34, Penna.



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"Tangential Feature" Simplifies Assembly and Modification—The extra straight section

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Discover how you can reduce costs wherever corrosion resistant piping is required at your plant . . . with Speedline Fittings, designed especially for use with low cost, light wall Schedules 5 and 10 stainless steel pipe.

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Separations Engineering Corp.	996
Sharples Corp., The	485

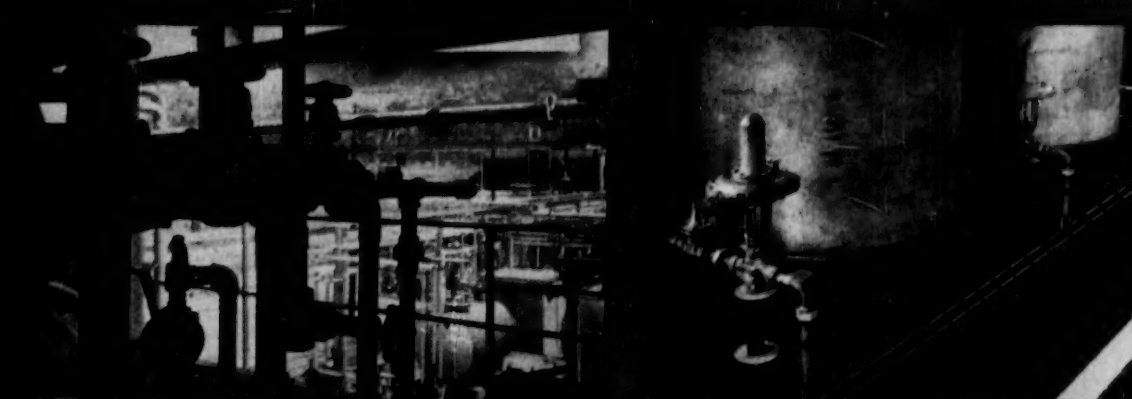
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Beckman Instruments, Inc.	333
Brabender Instruments, Inc., C. W.	342
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Healy-Ruff Co.	1343
Infilco Inc.	1163
Jacoby-Tarbox Corp.	1362
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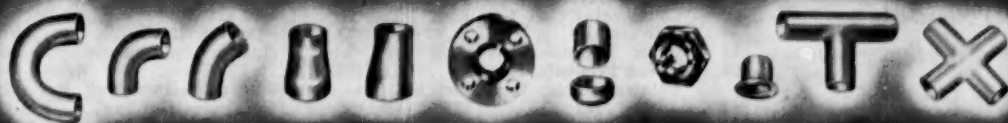


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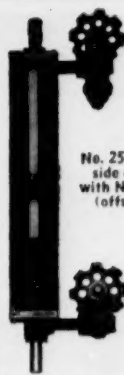
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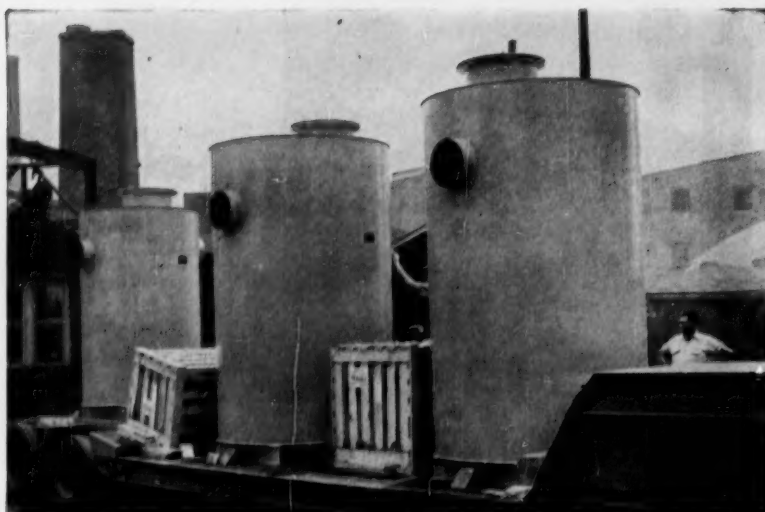
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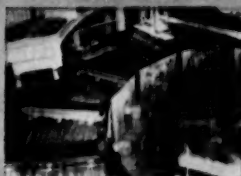
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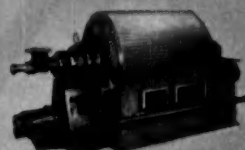
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for uniformly efficient separation and washing of crystalline or granular solids.



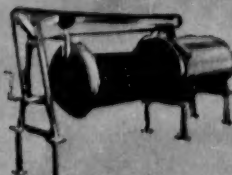
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for removal of solids difficult or impossible to handle on drum type filters, exceedingly thorough wash with minimum wash liquor and without dilution of mother liquor. Filter areas from 100 to 500 sq. ft.



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Allis-Chalmers
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CHEMICAL INDUSTRIES**

Coliseum, New York

December 2-6, 1957

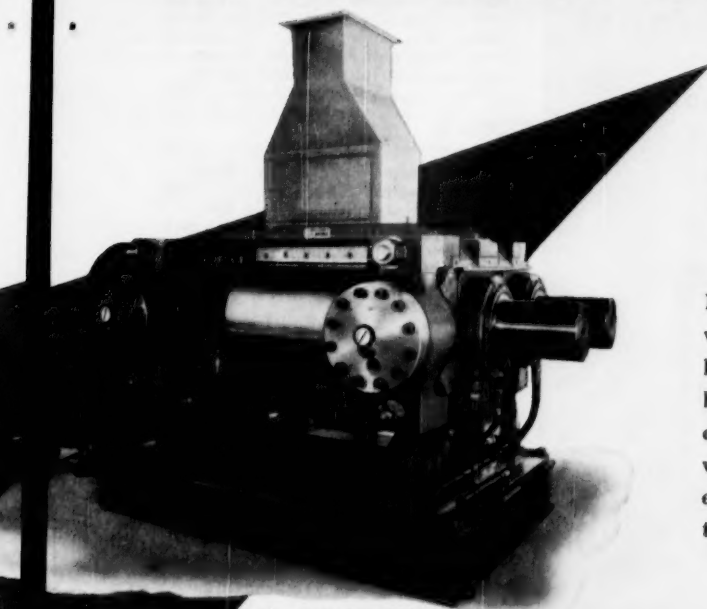
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- See how you can upgrade your waste fines into usable product.
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Screen

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Compacting Mill

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Auxiliary Power Units

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Motor Wagons
Tractor Shovels
Bulldozers
Motor Scrapers

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Vibrating Screens
Gyratory Screens
Grizzlies

Crushing

Gyratory Crushers
Roll Crushers
Jaw Crushers
Hammer Mills

Grinding

Ball Mills
Rod Mills
Pebble Mills
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Compacting Mills
Granulating Mills
Flaking Rolls
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Washing

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Log Washers
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Rotary Dryer
Ribbon Flight Dryer
Double Drum Dryer
Rotary Cooler
Air-Quenching Cooler
Combination
Dryer-Cooler

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Rotary Kilns
Induction Heaters
Dielectric Heaters
Converters
Furnaces

Miscellaneous

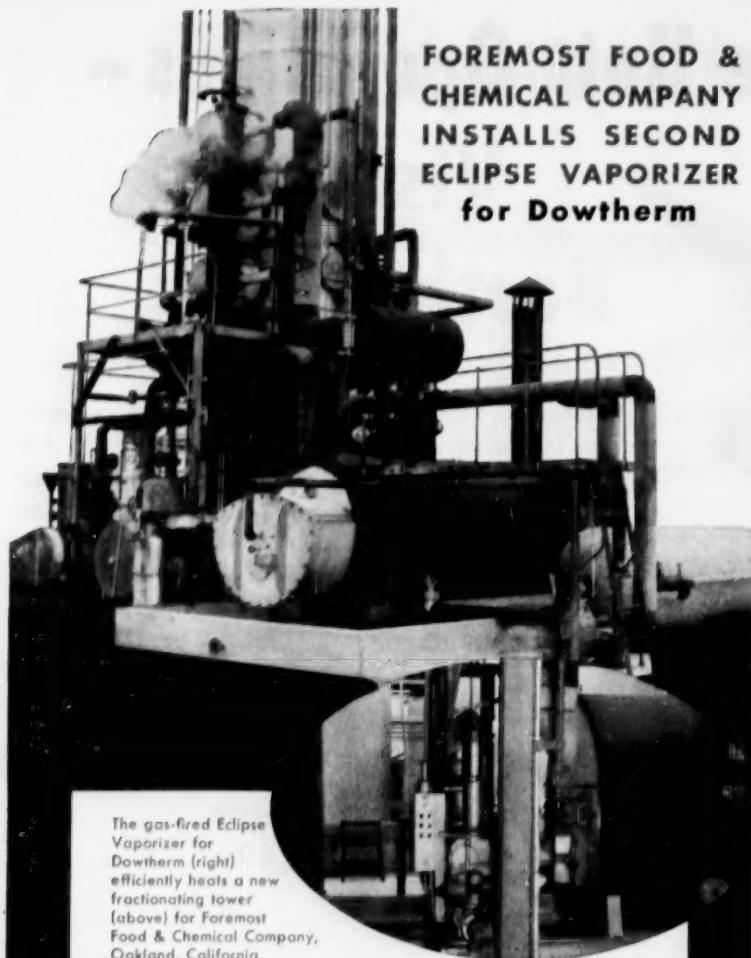
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Manlift
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ALLIS-CHALMERS



A-5554

FOREMOST FOOD & CHEMICAL COMPANY INSTALLS SECOND ECLIPSE VAPORIZER for Dowtherm



The gas-fired Eclipse Vaporizer for Dowtherm (right) efficiently heats a new fractionating tower (above) for Foremost Food & Chemical Company, Oakland, California.

Fully satisfied with the high rate of heat transfer achieved with its first Eclipse 2,000,000-Btu. Vertical Vaporizer for Dowtherm, bought several years ago, this processor reports complete success with the new 3,000,000-Btu. Eclipse Horizontal Vaporizer recently installed. The fully automatic, continuously cycled Eclipse unit is a perfectly dependable heat source for a new fractional distillation process. It gives a very low temperature differential between heat transfer medium and product, requires minimum attention, and saves on fuel.

Exclusive design features—the large enclosed furnace of Eclipse Horizontal Vaporizers for Dowtherm permits high heat output without strain. Burning gases reverse direction in a rear chamber and return turbulently through completely immersed firetubes to the stack at front of unit. Turbulent flow, plus special design of firetubes, increases heat-transfer rate — minimizes flue loss. Low liquid level permits gravity return of condensate, eliminating need of pumps. Special design features substantially reduce maintenance costs. Ask your Eclipse representative about the many advantages. Write for Catalog A-100.

ECLIPSE FUEL ENGINEERING CO.

1121 Buchanan Street, Rockford, Illinois
ECLIPSE FUEL ENGINEERING CO. OF CANADA, LTD.
20 Upjohn Road, Dan Mills, Ontario

VISIT BOOTH 981 at the Chemical Industries Show. Bring your process heating problems — the Eclipse engineers will be glad to help. See the displays that show how you can cut fuel costs and improve production.



STEAM-BOILER AND
HIGH-TEMPERATURE
HEAT-TRANSFER DIVISION

SHOW DIRECTORY . . .

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Scientific Glass Apparatus Co., Inc.	332

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	153

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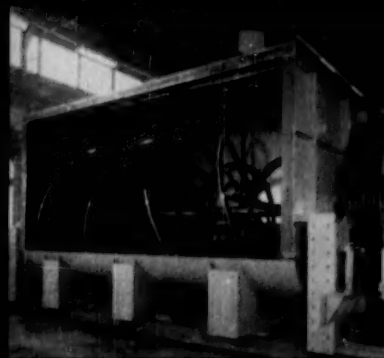
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DAY

builds world's largest mixer for CLINTON



The world's largest blender built by DAY and installed at Clinton's new plant.



Interior of DAY's largest blender, showing one of the two 9' agitators.

The world's largest mixer is part of a big installation of DAY equipment recently installed at the Clinton Corn Processing Company, a division of Standard Brands, Inc., Clinton, Iowa. It is so large that it can blend 60,000 lbs. of dextrin (one carload) at one time, assuring absolute uniformity of these huge batches.

DAY mixers, blenders, sifters, roll mills, and laboratory equipment are found in many major process plants, helping produce products better, faster and more profitably. You, too, will improve quality and cut costs when you use DAY process equipment. Write for information.

SERVING THE PROCESS
INDUSTRY SINCE 1887
4926 BEECH STREET
CINCINNATI 12, OHIO



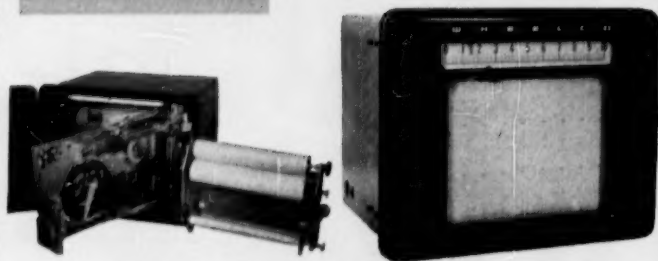
SEE DAY AT THE CHEM SHOW BOOTH 121-122
Inquiry Code Number for This Advertisement-87

THE MARK OF QUALITY

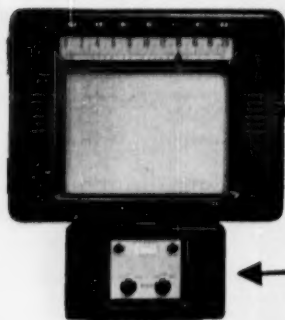


**Wheelco
Instruments**

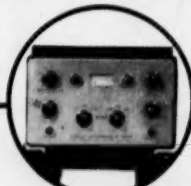
**In recorders and
recording controllers
...Wheelco gives you
the "extras" that
really count**



Series 8000 Recorders and Recording Controllers—available in a wide range of models, these self-contained null-balancing electronic instruments feature convenient swingout design for easy chart and instrument maintenance. Multi-point recorders keep permanent records of up to 16 points on a single chart—feature up to six limit switches for high and/or low signal indications... single- or multi-color printing... 3 to 24 in. per hr recording speeds.



Automatic Reset for Recording Controllers—available with Series 8000 instruments for demanding processes where small capacitance requires wide proportional settings and where offset cannot be tolerated. Tamperproof cover protects all adjustments, leaves necessary controls available to operator.



See them in Booth 1374 26th Exposition and Chem Show

Prove in your own plant that more accurate controlling and recording makes a big difference in precision processes. Wheelco Instruments not only provide outstanding operating characteristics but feature easier adjustment, inspection, and maintenance. Get the complete story by calling your nearby Wheelco field engineer or writing today for Bulletin F-7955. Wheelco gives you faster deliveries, too!

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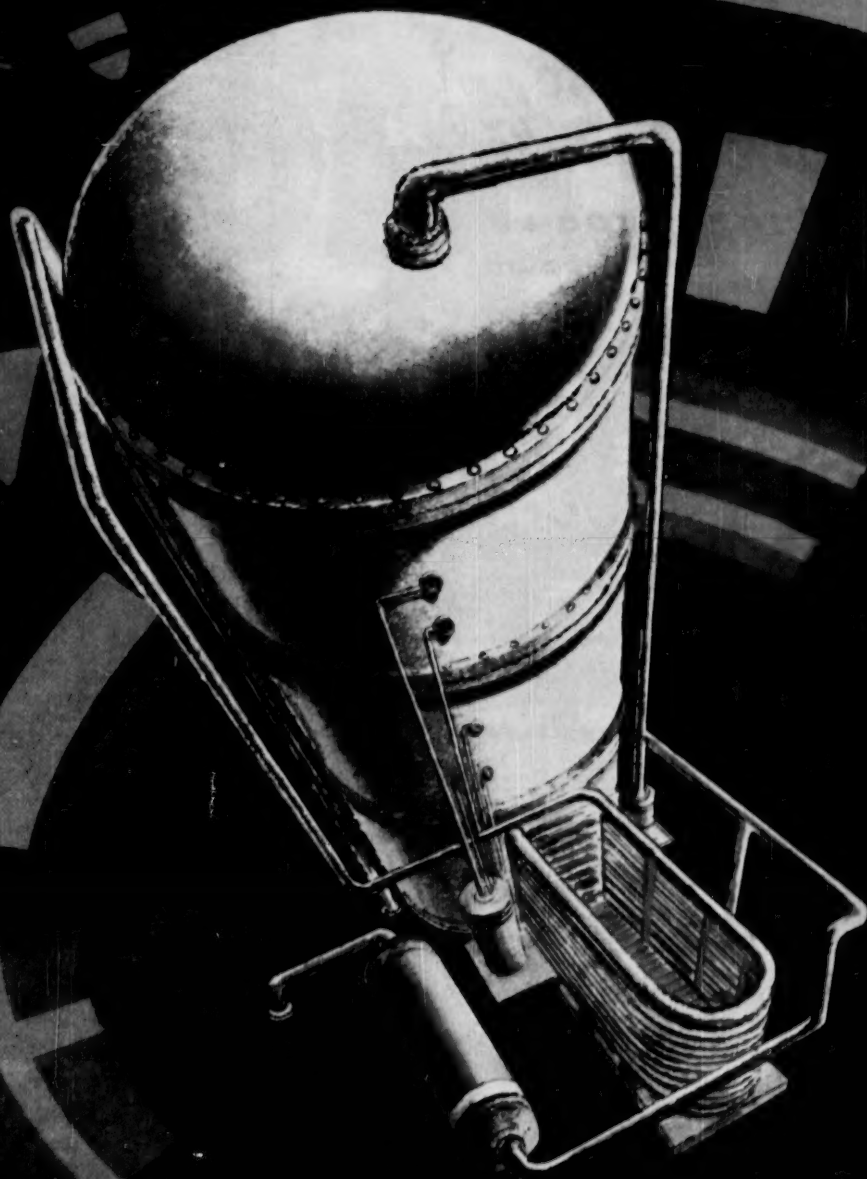
*Baker-Perkins, Inc., Chemical Machinery Div.	560 & 609
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*Dorr-Oliver, Inc.	531
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**NITRIC ACID
PLANTS**

available world-wide

Through The Chemical & Industrial Corporation, complete facilities for nitric acid are available in all markets of the world. C&I plants employ the du Pont, high pressure process and are designed and constructed to their rigid specifications. Only the finest materials and components are utilized guaranteeing a maximum safety factor, a minimum of maintenance and tremendous day-in

and day-out efficiency. C&I nitric acid plants are time tested and proven and the larger units can now be made self-sufficient after start-up.

An illustrated brochure is available on request.
Representatives in principal cities throughout the world.



THE CHEMICAL AND INDUSTRIAL CORP.
CINCINNATI 26, OHIO

*Designers and Constructors of Plants for the Processing of Ammonia
Available World-wide.*

Visit Us at the 26th Chemical Show, Coliseum, New York, December 2nd to 6th, 1957—Booth 802

Inquiry Code Number for This Advertisement-89

Provides Multiple Filtration Advantages

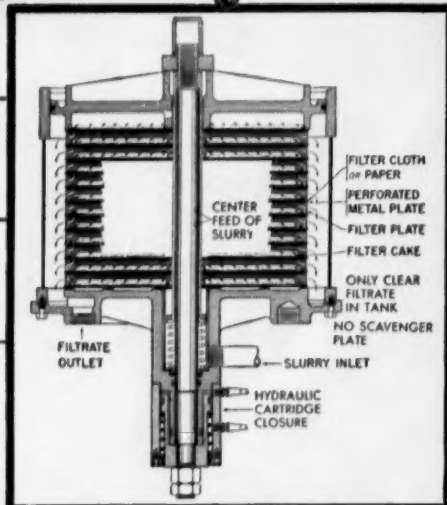
SHRIVER PRESSURE FILTER

**NO
LEAKAGE**

**NO
EVAPORATION**

**NO
CONTAMINATION**

**most
versatile**



This horizontal plate, enclosed tank type filter handles any fluid from the lightest, most volatile liquid to heavy slurries or viscous materials. It clarifies, purifies, polishes and extracts, recovers and washes filter cake and even practically dries it. Operation can be batch or continuous.

The cartridge is hermetically sealed in the tank. It permits build-up of firm, uniform cake of desired thickness which cannot break off the plates, even when run in interrupted.

There is no pressure in the tank, no unfiltered material. Flow rate is fast—up to 60 gal. per sq. ft. of filtering area per hr. Any filter medium can be used.

Removal of cartridge, cleaning and reassembly are simple, quick, easy.

Where others have failed—the Shriver Pressure Filter has more than proved its mettle. Bulletin 138A tells how.

Filter Presses
Filter Media
Diaphragm Pumps
Thickeners
Slab Formers
Electrolytic Cells

T. SHRIVER & COMPANY, Inc.

302 Hamilton St., Harrison, N. J.

Sales Representatives in

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See us at the
Chemical Show
BOOTHS 1375-1377

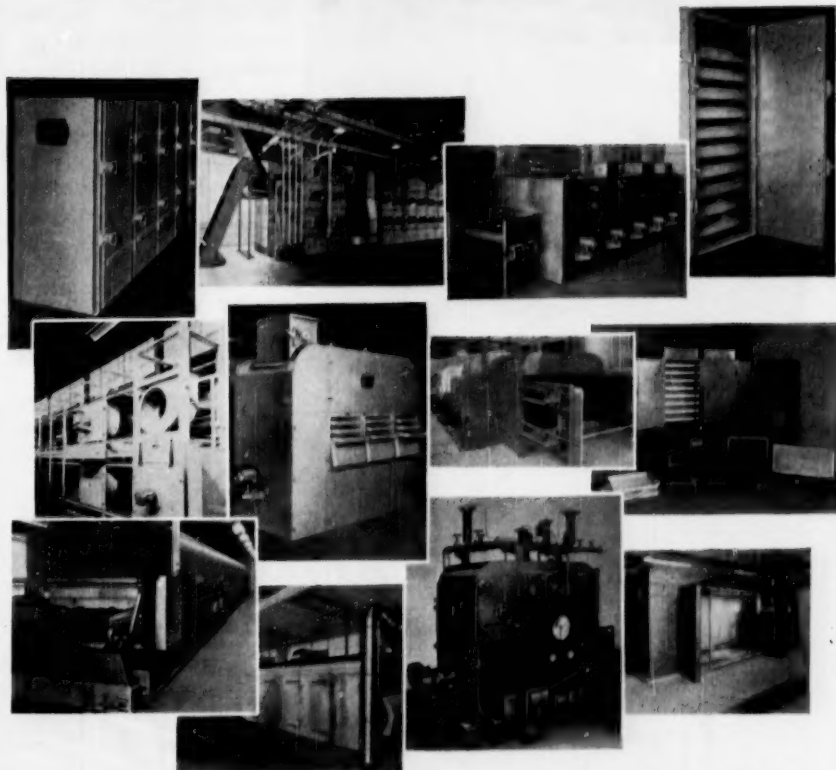
For the Process Industries

DRYERS *by* SARGENT

PRODUCTS DRIED BY SARGENT

include

Abrasives
Asbestos
Berries
Briquettes
Calcium Carbonate
Cereals
Chemicals
Clay Fillers
Cocoa
Coconut
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SARGENT DRYERS

(Illustrated Above)

PHARMACEUTICALS, 5 sections of 10-section, 100-tray dryer; Reclaimed RUBBER (triple-decker) dryer; PILOT PLANT dryer; PETRO-CHEMICAL plant, 40-tray dryer — 2 stacks, 10 trays high, 2 trays deep; COCONUT dryer; CHEMICAL plant, 9-tray dryer for reclaimed rubber; SKEIN dryer; COTTON SEED OIL plant tray dryer; TOBACCO dryer; TEXTILE STOCK dryer; Portable RESEARCH LABORATORY dryer; LEATHER dryer.

There's a SARGENT DRYER to do the job for the Process Industries — conveyor, or tunnel, or pole. Truck dryers. Tray Dryers. Stationary or Rotary Dryers. High speed or low, heavy capacity or light; continuous or batch methods. Research Laboratory Dryers. Pilot Plant Dryers.

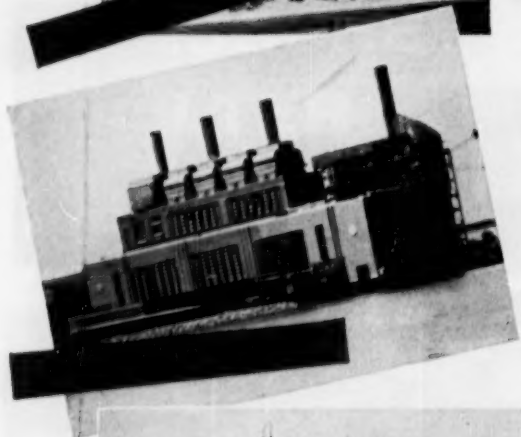
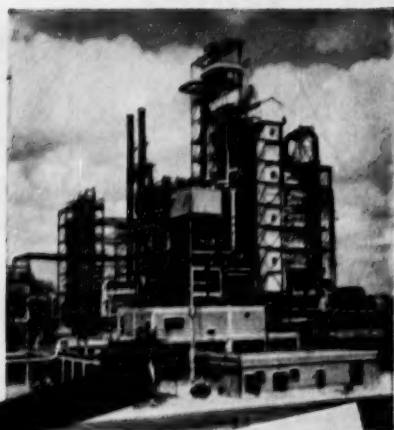
Coolers and Evaporators and SARGENT FEEDS — standard and special; Vibrating Screen Feeds, Conveyor Feeds, Air Stream Feeds.

**Sargent's Drying Research Laboratory invites your inquiry,
no matter what your drying problems may be.**

C. G. SARGENT'S SONS CORPORATION

Graniteville, SINCE 1852 Massachusetts

PHILADELPHIA 19 — F. E. Wasson, 519 Murdock Road
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CHICAGO 44 — John Low & Co., 5850 West Lake St.
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CHARLOTTE, N.C. — W. S. Anderson, Carolina Specialty Co.
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RUGGED

VOGT equipment is

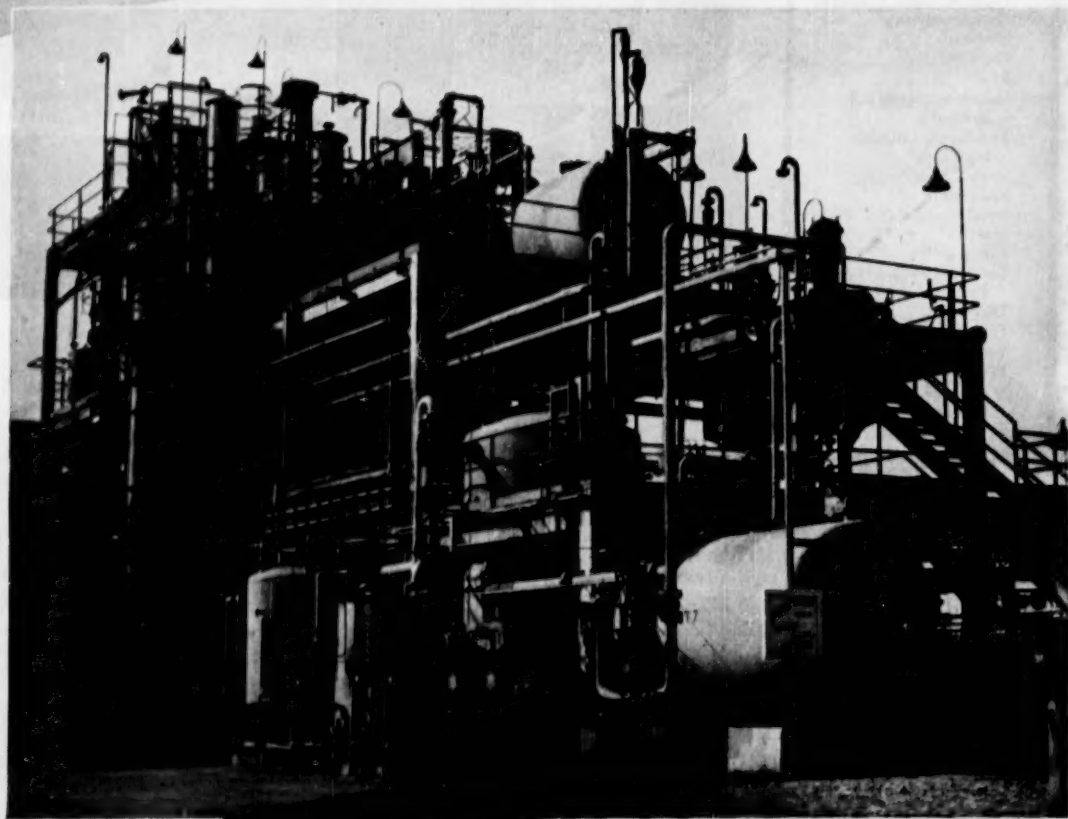
One of the chief reasons why Vogt equipment is used by so many of the nation's key industries is the close working co-operation of Vogt engineers with the customer in determining his requirements. The result is an extraordinary ability to produce mechanical designs which, when translated into the finished product, most economically meet the required needs. Performance on the job proves, too, that the care and rigid tests and inspections given every Vogt product pay off in low maintenance costs.

Specify Vogt and be sure of equipment which will meet today's toughest service demands.

Write Dept. 24A-GC for catalogs

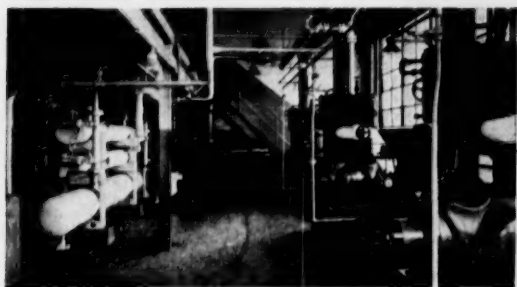
HENRY VOGT MACHINE CO., LOUISVILLE, KENTUCKY

SALES OFFICES: NEW YORK, PHILADELPHIA, CHICAGO, DETROIT, CLEVELAND, ST. LOUIS, DALLAS, CINCINNATI, CHARLESTON, W. VA.



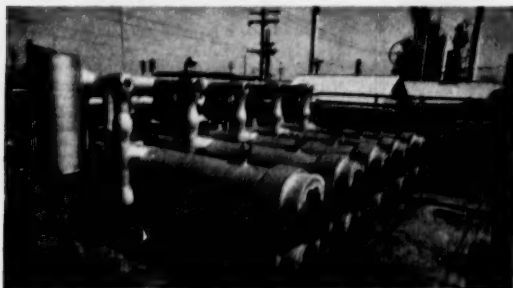
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used and trusted by the
nation's key industries



REFRIGERATION AND ICE MAKING EQUIPMENT

Widely employed in industry for important process work. Compression refrigeration systems, also Tube-Ice units, are available in a wide range of capacities.



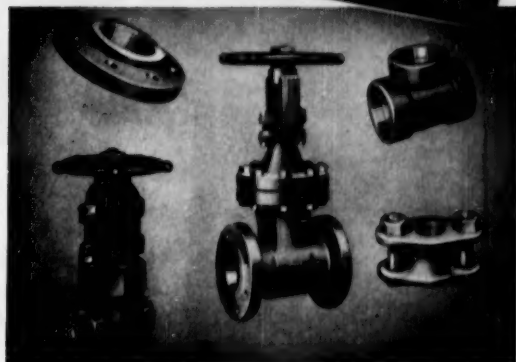
PROCESS EQUIPMENT FOR EVERY SERVICE

Constructed in wide variety to meet all Code requirements. Stills and towers, oil chillers, crystallizers, heat exchangers, molding machines, etc., serve in the manufacture of oils, greases, high octane gasoline, synthetic rubber, chemicals and related products.



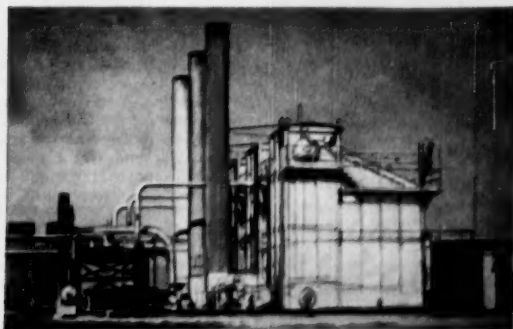
SPECIAL CORROSION RESISTANT MATERIALS

Vogt produces a wide variety of equipment from special metals and alloys to fight corrosion and product discoloration or contamination. Corrosion resistant properties of welds match that of the materials used to construct the equipment.



DROP FORGED VALVES, FITTINGS AND FLANGES

Vogt valves, fittings and flanges are drop forged from carbon and alloy steels to safely handle liquids and gases at high pressures, and high temperatures. Complete line includes: flanged, screwed and socket weld end globe, gate and check valves. Also ells, tees and crosses—couplings—bushings—plugs—unions—flanges and flange unions, and welding heads.



MODERN STEAM GENERATORS

Custom built and package type Vogt steam generators give maximum rating in a minimum of space with high efficiency and low maintenance costs. Available in bent tube and straight tube designs for solid, liquid or gaseous fuels, burned singly or in combination to meet every power, processing or heating requirement.

*How to save time and money
and get the best results on...*



high alloy fabrications and castings

*Consult General Alloys Company . . .
specialists in high alloys for
over a third of a century*

Serving the Process
and Allied Industries
and specializing in

Stainless steels
Inconel
Monel
Hastelloys
Clad steels
High nickel
chromium alloys

**VISIT BOOTH 193,
THE CHEMICAL SHOW**

TALK WITH EXPERIENCED
METALLURGICAL AND
PRODUCTION ENGINEERS

You save time and money and get best results on high alloy fabrications and castings with General Alloys specialized service. In high alloy work nothing can beat experience and General Alloys has a tremendous store from which to draw. This experience, plus complete and modern facilities for large scale production of tanks, vessels, mixers, blenders, etc., is your guarantee of work to exact specifications and delivery as scheduled.

Latest techniques, including inert gas shielded welding, are employed by General Alloys, and fabrication is to ASME code. A modern foundry is devoted exclusively to high alloy casting, where fittings, heavy flanges, or complex shapes can be cast for use in fabricated assemblies, when needed, at substantial savings over forging or machining the part. X-Ray inspection, dye penetrant and sand blasting are routinely used as inspection tools. And in addition, General Alloys has complete chemical and metallurgical laboratories for research as well as routine analysis.

You and your product will benefit from the wide experience and facilities offered by General Alloys Company. Write for Bulletin #561 . . . or send us your requirements and receive a prompt quotation.

*General
Alloys*

General Alloys Company

Fabricated Alloy Division

385 West First Street • Boston 27, Massachusetts

Offices in Principal Cities

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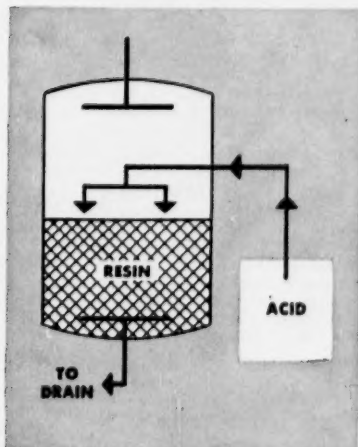
ILLINOIS WATER TREATMENT CO.

ionXchange

Announces...

COUNTERFLOW*

**A NEW METHOD OF ION-EXCHANGE THAT
PRODUCES BETTER QUALITY EFFLUENT AT LOWER COST**



**FIG. 1 CONVENTIONAL
REGENERATION**

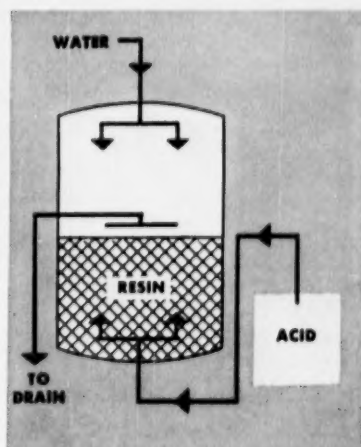
It has been recognized that breakthrough of ions, chiefly sodium, occurs in conventional ion-exchangers, causing a contamination of the effluent. This is due to layered retention of some metallic ions in the resin bed during normal operation. Studies show that these layers consist of Ca^{++} ions near the upper part, Mg^{++} ions in the middle, and Na^{+} ions through the lower part of the resin bed. Conventional regeneration does not completely remove the bottom layer of sodium ions. When back on service, these sodium ions are then kicked out and appear as contaminants of the effluent.

Many efforts have been made to overcome this undesirable situation, with limited success. Now, at last,

Illinois Water Treatment Company has discovered and developed a corrective method which has been thoroughly tested and has proved consistently and fully effective.

The conventional method of regeneration is shown diagrammatically in Fig. 1. One form of the new ILLCO-WAY method is shown in Fig. 2. The principal feature of the new ILLCO-WAY method is the upward passage of the regenerant, combined with some form of barrier to keep the resin bed from expanding. Previous attempts at upward regeneration failed because the low-density resin materials now commonly employed have a tendency to expand and channel. The result was a very inefficient regeneration. Increased concentrations of the regenerant only added to costs without significantly improving the results.

Actual installation experience with the new ILLCO-WAY method shows an almost complete elimination of



**FIG. 2 COUNTERFLOW
REGENERATION**

sodium contamination uniformly throughout each run. Fig. 2 illustrates one type of barrier that may be employed, namely, a downward pressure of water which keeps the resin bed from expanding. The mixture of water and regenerant is drawn off by a distributor located near the resin face.

If the purity of the effluent from your de-ionization equipment is not satisfactory, we suggest you discuss immediately, with your Illinois Water Treatment representative, this new and effective method of correcting it.

REPORT FROM A TYPICAL INSTALLATION

An existing conventional two-bed ion-exchange installation in Nebraska was converted to the new method described above. A study of results and operating costs over a six-month period shows a substantial improvement in the purity of the effluent (from a conductance of 25-5 micromhos to 6-0.5 micromhos) and a great reduction in cost of regenerants (from 7.34¢ per 1000 lbs. of effluent to 3.51¢).

*"COUNTERFLOW" is the trademark of Illinois Water Treatment Company equipment utilizing a distinctly new principle of regeneration. Patent pending.

**ILLINOIS WATER TREATMENT CO.
840 CEDAR STREET, ROCKFORD, ILLINOIS**



We'll pour you a pump that licks corrosion

If you have a problem involving pumps and corrosives, check the table below.

It lists several Goulds pumps you can get with fluid ends in a wide choice of special metals, cast in Goulds foundries.

All the pumps in the chart below are available in all iron, or bronze fitted, or all bronze (zinc free, leaded bronzes), or Ni-Resist, or Nickel Aluminum Bronze—or, as indicated, in Steels and Alloys.

Type of Pump	Described in Bulletin	Sizes—Number and Range	Maximum Capacity GPM	Maximum Head Ft.	Type of Impeller	Will Handle Slurries	Available in STEEL & ALLOYS*
Fig. 3715 Single Stage, Side Suction	725.4	10 ¾"–3"	800	300	Semi-Open	X	X
Fig. 3189 Single Stage, End Suction	720.4	13 1¼"–8"	3000	290	Open	X	In 4", 6", 8" Sizes
Fig. 3405 Single Stage Double Suction	721.6	33 3"–12"	6400	425	Encl.	—	In 6", 8", 10", 12" Sizes
Fig. 3305 Two Stage Opposed Impellers	722.6	8 1½"–4"	1200	1000	Encl.	—	Casings all Sizes—3" & 4" Comp. Pump
Fig. 3135 Paper Stock and Thick Liquids	723.1	16 3"–8"	4000	215	Open	X	X
Fig. 3138-39 Heavy Duty Process Pump	723.4	4 4"–14"	9000	160	Open	X	X

*STEEL & ALLOYS: All Sand Cast Machineable Alloys such as Low, Medium and High Carbon Steels, CF-8M (316), CN7MCU (Gould A-Loy 20), CG-8M (317), CF-8C (347), CA-40 (420), Monel, Nickel.

In addition, there's the new Goulds-Pfaudler glassed pump (Fig. 3708) that stands up for years against acids and alkalis because all surfaces in contact with the liquid are glassed. It's available in four sizes with capacities to 760 GPM and heads to 140 feet. It's described in Bulletin 725.2.

Your Goulds representative will be glad to discuss materials of pump construction that suit your process.

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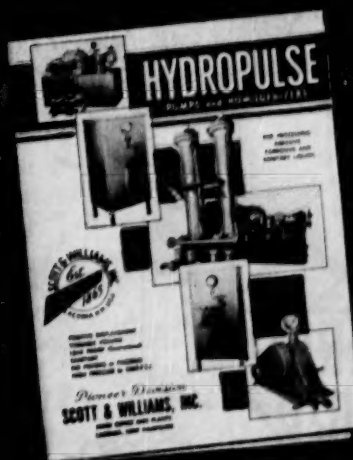
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*the first major
advance in dust
collection in more
than a decade!*

THE
ALL-NEW
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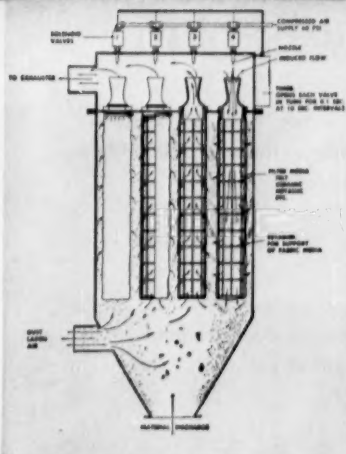
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PULSAIRE*
COLLECTOR!**

• With no internal moving parts, and a radically new method of continuous filter cleaning, the MIKRO-PULSAIRE Collector is the answer to industry's search for a collector unit that combines highest efficiency and true economy in operation!

The most costly factors in collector maintenance have been eliminated . . . that means all mechanical cleaning mechanisms with their gears, cams, chains, etc. Now, in the MIKRO-PULSAIRE, filter elements are cleaned in a continuous cycle by the introduction of momentary jets of high pressure air through specially contoured venturis mounted above each filter cylinder, individually controlled by a timed solenoid.

The MIKRO-PULSAIRE Collector is a completely simplified unit, yet capable of cleaning and filtering a dust-laden air stream at constant pressure and volume efficiencies equal to, or better than, any other automatic filter type collector. Efficiency of collection on one dust having 0.1 micron, ultimate particle size, averaged 99.9%+ at 50 grains per cubic ft. dust loading.

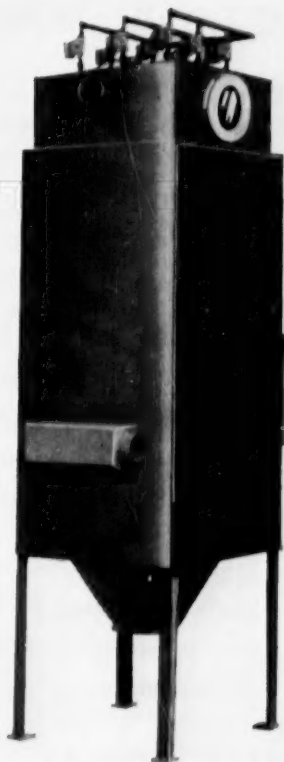
For more information on the MIKRO-PULSAIRE Collector, write for Bulletin 52A. In addition, we will be glad to make specific recommendations regarding your particular application requirements.



Schematic diagram showing flow of dust and air, and arrangement of filter cylinders in the MIKRO-PULSAIRE Collector.

MIKRO-PULSAIRE Model 9-4

The Model 9-4 MIKRO-PULSAIRE Collector has 42 sq. ft. of filter area, and is capable of operation at approximately the same filter ratios as conventional fabric type dust collectors. Unit handles between 400 and 600 cfm of dust-laden air. MODEL 48-6 has 340 sq. ft. of filter area for capacities from 2000-5000 cfm. Units also available for intermediate and larger capacities.



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A Dryer Reactivated Without Heat!

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DRYER SUPPLYING SUPER-DRY AIR OR GAS WITH-
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- 18 models available, handling flows from 2 to over 1800 standard cubic feet a minute.
- The units will provide effluent dewpoints of -100°F . to -140°F . continuously, regardless of even major fluctuations in the temperature of the gas or air.
- Installation costs reduced.
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- Virtually all corrosion problems are eliminated.
- Explosion proofing costs may be eliminated completely.
- Outdoor installation is simplified.

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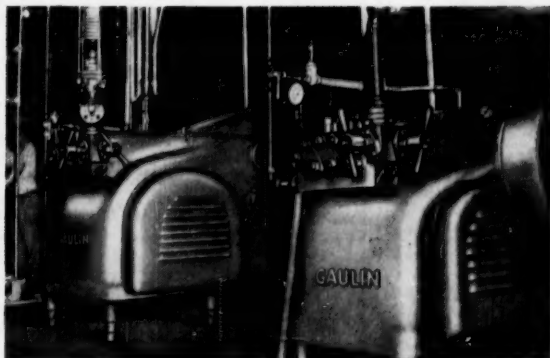
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"For 30 years, we have used Eaton-Dikeman filter papers to obtain the sparkle and purity that are essential in maintaining the quality for which Canada Dry Beverages are known and liked", says Mr. J. L. Murphy.

"Our beverages are sold to millions of consumers each year. They are a discriminating and exacting jury. Clarity, flavor, sparkle must be up to top standards at all times to hold their loyalty. Thus, in the final stages of polish filtration, we must have a dependable and uniform filter medium. We have found that Eaton-Dikeman filter paper, year in and year out, fulfills these requirements.

"In addition to fine porosity, E-D filter paper has very high rapidity, which is a requisite for maintaining the high production rate of Canada Dry Beverages.

"Filtration is a very important part of our operation. Every bottle that leaves our plant must be sparkling, clear and pure. E-D filter paper helps us uphold these standards."



J. L. Murphy, Jr.,
Vice-President in charge of
production for Canada
Dry Ginger Ale, Inc.

**To get maximum clarity for your filtration,
let us recommend the grade you ought to
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are these the
"TROUBLE SPOTS"

**IN YOUR
EXHAUST
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SOLVE YOUR CORROSION PROBLEMS

with

INDUSTRIAL PLASTIC FABRICATORS'

P. V. C. Blowers and Fans

If your company is engaged in pickling, plating, anodizing, etching, bleaching and chemical processing operations, IPF PVC centrifugal blowers and tubular axial fans can stop corrosion in your exhaust system.

Have you ever figured the corrosion losses of your present exhaust system? With conventional type blowers and fans, you don't buy corrosion but you never stop paying for it in repeated paintings and protective coatings, replacement costs, lost production time and interruption of critical processes.

You can prevent such losses with IPF PVC blowers and fans. They outlast conventional types of fans three to five times . . . resist most corrosive fumes and combination of fumes . . . are lightweight, smooth, non-porous, plastic and never require repainting or recoating.

Descriptive literature on the complete line of IPF PVC fans, tanks, hoods, ducts and stacks is available on request.

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PRODUCTS
for the
chemical process
industries



For over 50 years Norton laboratory research and development have served industry by constantly bringing forth new electric furnace products, as well as improving the electrochemical refining and purification of existing materials.

Today, in three Norton electric furnace plants tremendous amounts of electrical energy are used to convert crude minerals into essential materials. Such materials include ALUNDUM* aluminum oxide, CRYSTOLON* silicon carbide, MAGNORITE* fused magnesia, NORBIDE* boron carbide, FUSED ZIRCONIA and many others. Industry can depend on these Norton products because precise control of processing results in high purity that is consistently duplicated.

High Temperature Refractories

- Catalyst Carriers
- Cements and Castables
- High-Purity Fired Shapes
- Laboratory Ware

Porous Mediums

- Tubes, Plates, Discs

Abrasive Products

- Grinding Wheels
- Abrasive Grain
- Bonded Abrasives
- Coated Abrasives

SEE THE NEXT THREE PAGES FOR FURTHER FACTS

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ALUNDUM Catalyst Carriers and Supports...

proved aids to better, lower cost processing

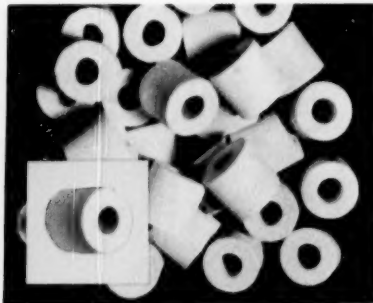
Made in these shapes and sizes



Spheres: (Low surface area)
 $\frac{3}{16}$ " to $1\frac{1}{2}$ " diameter
 (Intermediate surface area)
 $\frac{1}{4}$ " to $\frac{1}{2}$ " diameter



Pellets: (All carriers)
 $\frac{1}{8}$ " x $\frac{1}{8}$ " to $\frac{1}{2}$ " x $\frac{1}{2}$ "



Rings: (All carriers)
 Bore Length OD
 $\frac{1}{8}$ " x $\frac{1}{4}$ " x $\frac{3}{8}$ "
 to 1 " x $1\frac{1}{2}$ " x $1\frac{1}{2}$ "

Norton ALUNDUM catalyst carriers have excellent mechanical, thermal and chemical stability. They are crystalline in nature and are produced in two surface area types: Intermediate ($5-70\text{m}^2/\text{gram}$) and Low (less than $1\text{m}^2/\text{gram}$). The alumina content of the intermediate carriers is approximately 77%. These are subdivided into Types A, B and C, with varying characteristics. In the

low surface area carriers, the alumina content ranges from 77% to 92%.

On request, Norton catalyst carriers and supports can be prepared from other materials, including CRYSTOLON silicon carbide, MAGNORITE fused magnesia, zirconium oxide, silica, etc. — basic ingredients of the Norton engineered and prescribed Refractory R's.

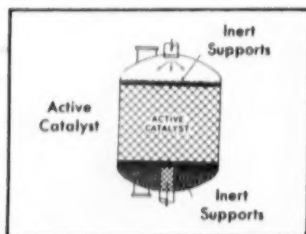
PHYSICAL PROPERTIES

	Apparent Porosity	Water Absorption	Bulk Density	Vol. Bulk Density	Crystal Structure	Surface Area
Intermediate Surface Area Type A	45-50%	28-30%	1.65-1.70 gr/cc	58 lbs./ft ³ (Approx.)	Quartz, Alpha, Gamma Alumina — chiefly Gamma Alumina	60-70m ² /gram
Type B	45-50%	28-30%	1.65-1.70 gr/cc	60 lbs./ft ³ (Approx.)	Quartz, Alpha, Kappa, Delta Alumina	20-30m ² /gram
Type C	45-50%	28-30%	1.65-1.70 gr/cc	62 lbs./ft ³ (Approx.)	Alpha Alumina and Mullite	5-10m ² /gram
Low Surface Area	10-50%	3-25%	1.90-3.15 gr/cc	65-80 lbs./ft ³	Alpha Alumina and Mullite	Less than 1m ² /gram

Some of many applications

Suggested Applications For Intermediate Surface Carriers include catalytic reforming, dehydrogenation, dehydration, sulfuric acid manufacture, nitric acid manufacture and desiccants.

Low Surface Area Carriers are used in the processing of phthalic anhydride, maleic anhydride and ethylene oxide; also in protective atmospheres and synthetic gas generation.



CATALYST SUPPORTS in fixed bed convertors

Where it is necessary to suspend active catalysts at a given level, supports produced by Norton are used successfully. Made of dense, rugged, electrically fused materials these supports have great resistance to breakdown and have no chemically reactive effect on the processing.

New ALUNDUM Castables

increase furnace protection to 3300°F
... plus many other advantages



Characteristics of ALUNDUM Castables

	33-I	33-HD
Density (as cast and dried)	100 lbs. per cu. ft.	170 lbs. per cu. ft.
Water added per 100 lbs.	18 pts.	11 pts.
Setting up time Stiffens Initial set Final set	1 hr. 4 hrs. 18-24 hrs.	1 hr. 4 hrs. 14-24 hrs.
Shrinkage (as cast)	0%	0%
Grain size	6F	6F
Chemical analysis — Al_2O_3 , SiO_2 , Fe_2O_3	primarily < 0.1% < 0.1%	primarily < 0.10% < 0.15%
Maximum hot face temperature	3300°F	3300°F
Porosity-Fired	58%	30%

Norton 33-I and 33-HD ALUNDUM Castables offer exceptional advantages to chemical processing and other industries where high temperature furnaces are used.

Both types are easy to install and to store, to mix and to work. They come in dry form, in moisture-protective bags. They mix in about five minutes, to a consistency as workable as any cement mix.

ALUNDUM 33-I Insulating Castable is made up primarily of countless small, pure aluminum oxide bubbles. Forming a network of air spaces it provides excellent insulation, even at the highest commercial temperatures.

ALUNDUM 33-HD Heavy Duty Castable is chiefly composed of dense grains of pure aluminum oxide. It is recommended for forming dense monolithic surfaces in constructing many types of furnaces where high temperature conditions are more severe.

Both ALUNDUM 33-I and 33-HD Castables protect at temperatures up to 3300°F and are very easy to mix and use. You can cast simple or complex shapes with them quickly and inexpensively for many installations and replace more expensive pre-fired shapes.

Norton Cements

Norton refractory cements have been developed to meet the most rigid requirements. The three major materials used in compounding these products are ALUNDUM fused alumina, CRYSTOLON silicon carbide and MAGNORITE fused magnesia. All are stable, highly refractory materials which are carefully blended to assure proper grit size distribution. They are suited to many types of operations, including ramming linings, brick laying, patching, etc.

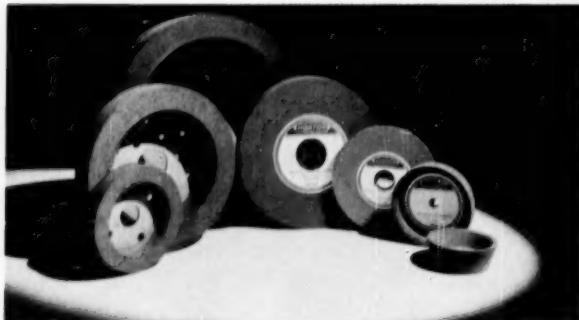
NORTON
REFRACTORIES

...OTHER NORTON PRODUCTS FOR CHEMICAL PROCESSING



Porous Mediums — Tubes — Plates — Discs. For filtration, diffusion or aeration, these Norton products are engineered to provide the most important advantages — uniform flow. Made of strong, chemically stable ALUNDUM material they also have high resistance to alkalis and acids. Their pores are uniformly distributed, in needed sizes and open-pore ratios. Norton seamless tubes, used for many applications, are uniformly porous over their entire area, permitting constant liquid or air pressure and enabling improved cleaning through back-washing.

Laboratory Ware. Because of its chemical stability in contact with reagents, ALUNDUM ware has been successful for many years in laboratory development and analytical work, including filtering, extractions, melting, incineration, etc. When ordering Norton laboratory ware desired mixtures should be specified. This includes not only ALUNDUM mixtures, but other Norton materials. For example, crucibles are available, on application, in MAGNORITE or CRYSTOLON materials, and in fused stabilized zirconia.



Grinding Wheels and Abrasives. In grinding wheels and abrasive grains the choice depends on the type of material to be ground and its hardness — plus the severity and method of operation. Many of the Norton "Know-How" booklets — all available without charge — contain tables of recommendations for materials commonly ground and based on conditions of stock removal, finish, etc. These tables are extremely useful in quickly selecting the correct specifications.

Source Materials. Norton electric furnaces produce a wide variety of materials that have proved themselves extremely valuable addition agents and intermediates in chemical processing.

Advanced processing control of all Norton materials assures constant duplication of specifications, together with many other advantages.

For further facts on Norton products, essential to steady progress in chemical processing, see your nearby Norton Representative or write to one of the Company's District Offices or Worcester Headquarters. **NORTON COMPANY**, New Bond Street, Worcester 6, Mass.

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American Hydrotherm Corp.	1161
Bryant Mfg. Co.	1089
Carbone Corp., The.	803
Carrier Conveyor Corp.	1321-1323-1325-1327
Catalytic Combustion Corp.	1165
Croll-Reynolds Engineering Co., Inc.	1344-1346
*Dean Thermo-Panel Coil Div., Dean Products, Inc.	184
Despatch Oven Co.	1168-1170
Electric Hotpack Co., Inc.	373-375
Fisher Scientific Co.	386
General Ceramics Corp.	131
Grinnell Co., Inc.	566
Hanovia Chemical & Mfg. Co.	190-192-196, 225
Heil Process Equipment Corp.	1305
International Boiler Works Co., The.	1216
McIntosh Equipment Corp.	1341-1343
*Marlo Coil Co.	1053-1066
Pick Mfg. Co., Water Heater Div.	1341
Precision Scientific Co.	370-372
*Renneburg & Sons Co., Edw.	1078
*Sargent's Sons Corp., C. G.	1375-1377
Selas Corp. of America.	973-975
Smico, Inc.	1281
Southwestern Engineering Co.	1250-1252
Steiner-Ives Co.	1381
Syntro Co.	93
Trent, Inc.	195
Westinghouse Electric Corp.	510
Whitlock Mfg. Co., The.	1181
Wiegand Co., Edwin L.	850

HEATING SYSTEMS AND ACCESSORIES

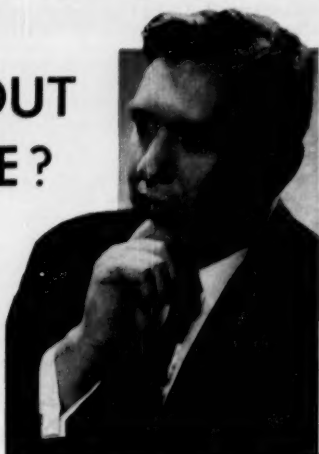
American Hydrotherm Corp.	1161
Carrier Conveyor Corp.	1321-1323-1325-1327
*Dean Thermo-Panel Coil Div., Dean Products, Inc.	184
*Eclipse Fuel Engineering Co.	981
Grinnell Co., Inc.	566
Heil Process Equipment Corp.	1305
Leslie Co.	1333
Marlo Coil Co.	1053-1066
McIntosh Equipment Corp.	1341-1343
*Norcross, Sterling E.	1372
Parks-Cramer Co.	55
Pick Mfg. Co.	1341
Platecoil Div., Tranter Mfg., Inc.	1206-1208-1210
Research Controls.	1186
*Sarco Co., Inc.	163

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You can find many fine career opportunities in the Chemical Process Industries by reading the advertisements in our **EMPLOYMENT OPPORTUNITIES** section (p. 485).

For location of this section in regular biweekly issues, see Index of Advertisers.



For: **IMPROVED PERFORMANCE**
LESS MAINTENANCE

Install **VOSS VALVES**
REG. U.S. PAT. OFF.

IN YOUR COMPRESSOR

Their use in reciprocating compressors assures:—up to 40% more valve area—minimum pressure loss—higher efficiency—less power consumption—lower operating costs—quiet, vibration-free operation—normal discharge temperature—utmost safety.

VOSS VALVES are individually designed after careful study of the specific conditions under which the compressor operates. They are machined from bars of best alloy steels; then heat treated for minimum wear and highest fatigue strength.

Where corrosive gases are processed special attention is given to alloy steel selection to assure maximum corrosion resistance under most trying conditions. Write for information, giving bore, stroke, speed and make of compressor.

VISIT OUR BOOTH NO. 1354 AT THE CHEMICAL SHOW. TALK YOUR COMPRESSOR PROBLEMS OVER WITH OUR ENGINEERS.



VOSS VALVES
REG. U.S. PAT. OFF.

J. H. H. VOSS COMPANY INC.
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Wiegand Co., Edwin L. . . 850

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Industrial Products Engineering Co. . . 1215
*Ingersoll-Rand Co. . . 128
Link-Belt Co. . . 165
Sterling, Fleischman Co. . . 1077
Stephens-Adamson Mfg. Co. . . 1039

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Buschman Products, Inc. . . 1365
Chemical & Pharmaceutical Industry Co., Inc. . . 1064
*Chemicolloid Laboratories, Inc. . . 618
*Cherry-Burrell Corp. . . 984
Cornell Machine Co., The . . 1110
Fitzpatrick Co., The W. J. . . 49
*Gifford-Wood Co. . . 219
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Hockmeyer & Co., Herman . . 1178
*International Engineering, Inc. . 812
Knapp Mills, Andrews-Knapp Construction Co., Inc. . . 175
Industrial Products Engineering Co. . . 1215
*Manton-Gaulin Mfg. Co., Inc. . . 51
Metal Glass Products Co. . . 623
Miller & Son, Inc., Franklin P., Supreme Crusher Div. . . 1010
*Morehouse-Cowles, Inc. . . 814
Tri-Homo Corp. . . 214
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*Pfaudler Co., The, Div. of Pfaudler Permutit, Inc. . . 110, 141
*Pioneer Div., Scott & Williams, Inc. . . 1146
*Ross & Son Co., Inc., Charles . . 983
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Alberene Stone Corp. of Virginia . 465
Blickman, Inc., S. . . 325
Brown-Morse Co. . . 1156
Colonial Plastics Mfg. Co., The, Industrial Div. . . 1262-1264
*Day Co., The . . . 13
*Dean Thermo-Panel Coil Div., Dean Products, Inc. . . 184
DuVerre, Inc. . . 1049
Haveg Industries, Inc. . . 546
Hamilton Mfg. Co. . . 359
Heil Process Equipment Corp. . . 1305
*Industrial Plastic Fabricators, Inc. . . 1217
Industrial Products Engineering Co. . . 1215
Kewaunee Mfg. Co. . . 398
Laboratory Furniture Co., Inc. . . 309
Lennard Co., Inc., P. M. . . 1227
Luzerne Rubber Co., The . . 435
Metalab Equipment Co., Div. of Norbute Corp. . . 356
*Mine Safety Appliances Co. . . 81
*Renneburg & Sons Co., Edw. . . 1078
Sheldon Equipment Co., E. H. . . 336
Terriss Div. of Consolidated Si-phon Supply Co., Inc. . . 1329-1331

*For additional information see advertisement in this issue. Chemical Engineering advertisers listed in bold-face type.

"DAVENPORT"

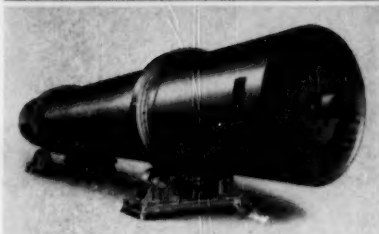
PRESSES—DRYERS—COOLERS

made to your SPECIFICATIONS

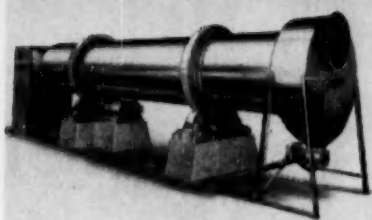
BOOTH 818 — NEW YORK SHOW



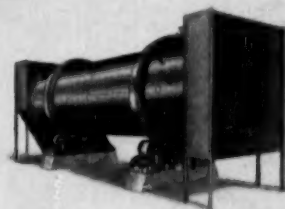
"Davenport" 3' - 6" Dia. Rotary Water Tube Cooler.



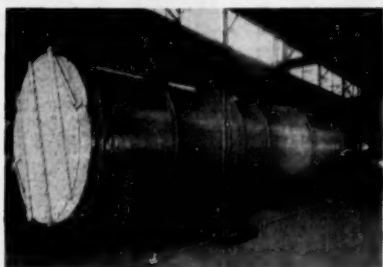
"Davenport" Rotary Steam Tube Dryer for drying soybean flakes.



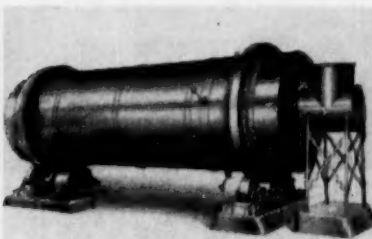
"Davenport" Rotary Hot Air Dryer drying whey powder, a by product from the manufacture of cheese.



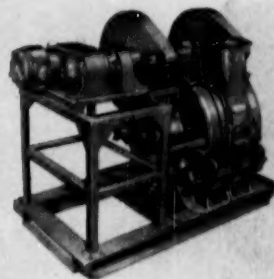
"Davenport" Rotary Hot Air Dryer for drying wheat gluten.



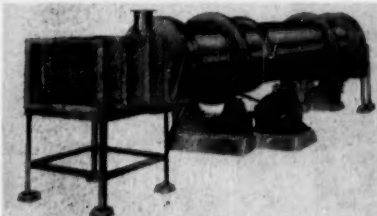
"Davenport" Rotary Hot Air Dryer fabricated from stainless steel for drying Adipic Acid.



"Davenport" Rotary Cooler fabricated from aluminum, for cooling molten alum.



"Davenport" Continuous De-Watering Press made in three sizes for various capacities.



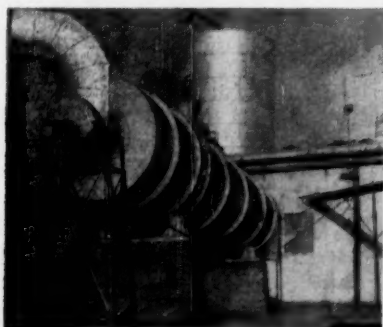
"Davenport" Rotary Hot Air Dryer for drying heat sensitive materials.



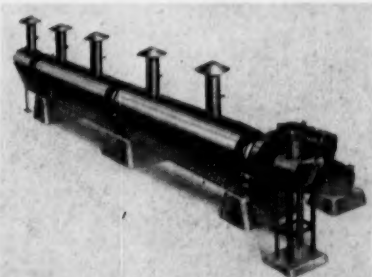
"Davenport" Rotary Steam Tube Dryer, drying sodium and potassium perchlorates.



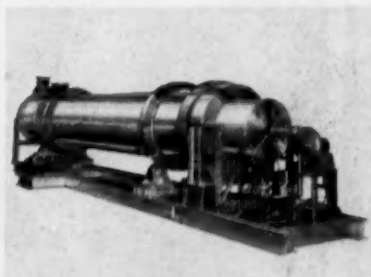
"Davenport" Double Drum Atmospheric Dryers drying yeast made from paper mill waste.



"Davenport" Rotary Air Cooler cooling soybean meal from a solvent extraction process.



Special "Davenport" Rotary Indirect Fired Dryer fabricated of special stainless steel using natural gas as heating medium.

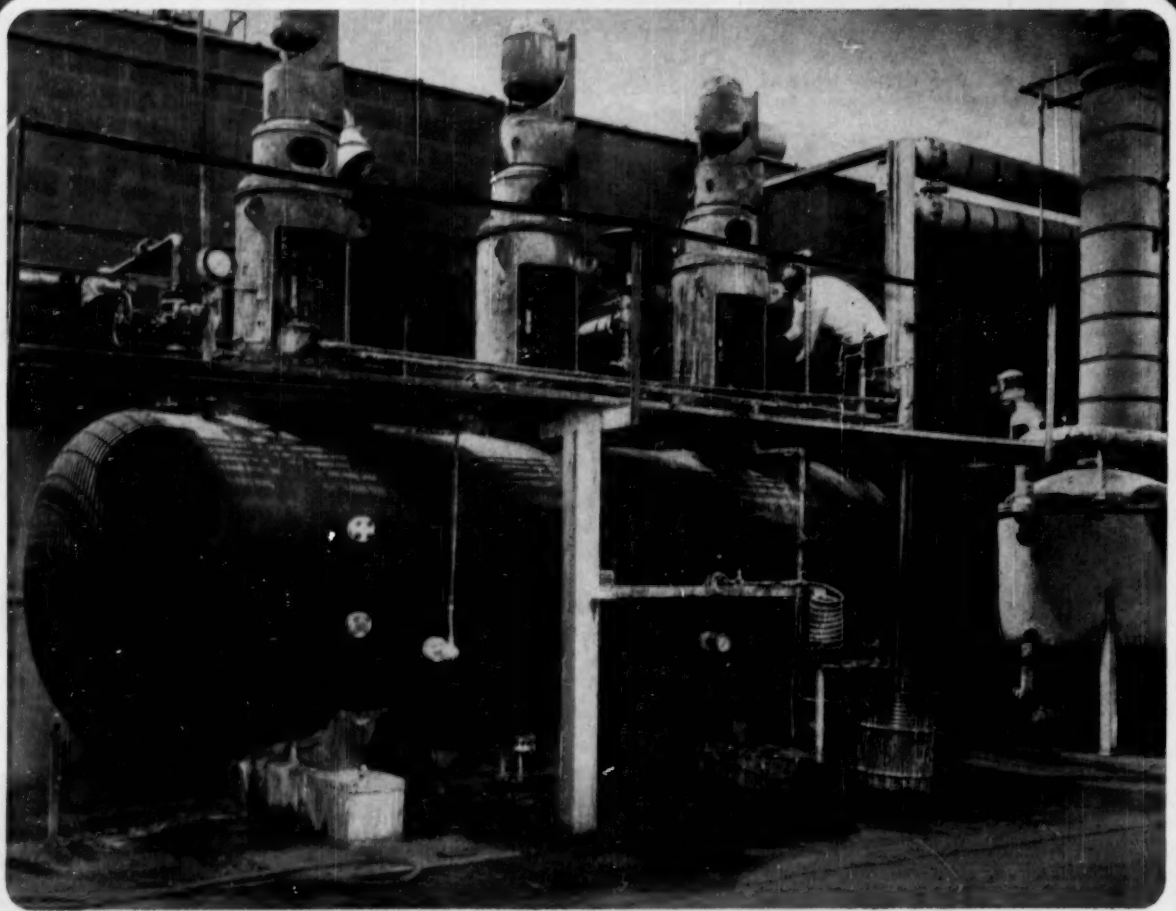


"Davenport" Rotary Direct Fired Dryer for drying and calcining welding flux.

If you have a De-Watering — Drying or Cooling problem, our experienced engineers with our pilot plant can assist you with your problems. For quick reference, see Chemical Engineering 1957 catalog, or write for our Catalog A.

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Foundry Company
Davenport, Iowa, U.S.A.

“No other metal will do
as well as Stainless



Autoclave has Stainless lining, impellers and shafts.

the job Steel"

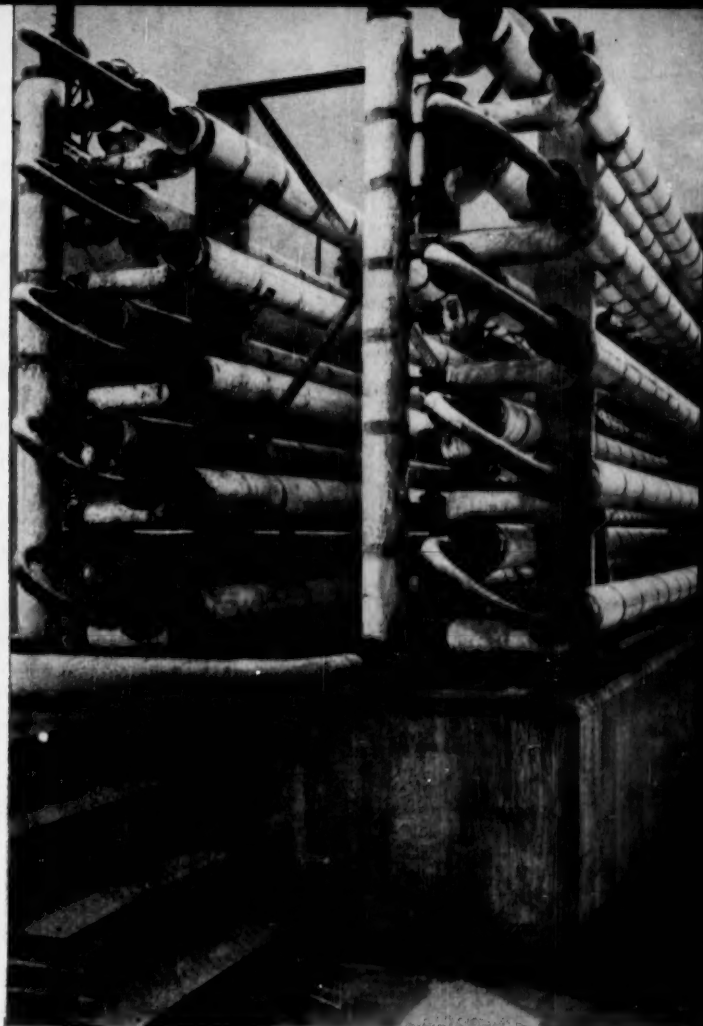
...says

**WHITAKER METALS CORPORATION
NORTH KANSAS CITY, MO.**

About two years ago, in a new 1½ million dollar plant, Whitaker Metals Corporation began a unique operation of leaching copper out of scrap metal of high copper content. It's strictly a chemical process, and large amounts of ammonium carbonate must be pumped and stored.

Stainless Steel is the only practical metal for this type of service, and you'll find it in hundreds of locations throughout the plant. Primarily, the Stainless is used for strength and corrosion resistance. Most vessels, pumps and pipelines are made from Stainless—as well as the centrifuge delivery screens. Here, they found that Stainless screens were much easier to clean than other types, because they retain their surface density and smoothness.

Wisely, Whitaker designed with Stainless right from the start, so they were spared the cost of trial and error replacement. This is a



Stainless Steel tubing is used to preheat ammonium carbonate solution.

good plan for any chemical plant design, because it insures that you will get maximum return on your Stainless Steel investment. For service-tested quality, you should specify *USS* Stainless Steel.

SEE The United States Steel Hour. It's a full-hour TV program presented every other week by United States Steel. Consult your local newspaper for time and station.

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UNITED STATES STEEL

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*Dean Thermo-Panel Coil Div., Dean Products, Inc.	184
Electric Hotpack Co., Inc.	373-375
Grinnell Co., Inc.	566
Lennard Co., Inc., P. M.	122
*Marlo Coil Co.	1053-1066
Peabody Engineering Corp.	979
Selas Corp. of America	973-975

INDICATORS

B.I.F. Industries, Inc.	660
Bailey Meter Co.	45
*Baker & Co., Inc.	190-192-196, 225
Brooks Rotameter Co.	998
Fischer & Porter Co.	496, 545
Foxboro Co., The	519
*Fuller Co.	446
Jacoby-Tarbox Corp.	1362
Jarco Services, Inc.	1343
*Jeffrey Mfg. Co., The	97
Klinger, Inc., Richard	1347
McIntosh Equipment Corp.	1341-1343
*Mine Safety Appliances Co.	81
Minneapolis-Honeywell Regulator Co., Industrial Div.	635
Petrometer Corp.	1384
Potter Aeronautical Co.	396
Rochester Mfg. Co., Inc.	943
Smico, Inc.	1281
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Uehling Instrument Co.	364
Walker Crossweller & Co., Ltd.	1343
West Instrument Corp.	1353
Yarnall-Waring Co.	64

INSTRUMENTS, OPTICAL

Brinkman & Co., C. A.	360
Fisher Scientific Co.	386
General Laboratory Supply Co.	310
Perkin-Elmer Corp., The	1081-1083
Scientific Glass Apparatus Co., Inc.	332
Welch Mfg. Co., W. M.	205
Will Corp. & Subsidiaries, Inc.	395

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Cambridge Instrument Co., Inc.	376
Coleman Instruments, Inc.	320
Fenwal Inc.	834
Fisher Scientific Co.	386
Foxboro Co., The	519
General Electric Co., Apparatus Sales Div.	482
Gow-Mac Instrument Co.	1246
Minneapolis-Honeywell Regulator Co., Industrial Div.	635
Perkin-Elmer Corp., The	1081-1083
Photovolt Corp.	389
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Torsion Balance Co., The	328
Uehling Instrument Co.	364
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Brabender Instruments, Inc.	342
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Brooks Rotameter Co.	998
Carver Inc., Fred S.	90

Electric Hotpack Co., Inc.	373-375
Fisher Scientific Co.	386
General Electric Co., Apparatus Sales Div.	482
Gow-Mac Instrument Co.	1246
Hart-Moisture-Meters, Raymond S. Hart Inc.	369
Imperial Brass Mfg. Co., The	894-896
Laboratory Equipment Corp.	905
New York Laboratory Supply Co., Inc.	1022
Photovolt Corp.	389
Precision Scientific Co.	370-372
Robertshaw-Fulton Controls Co., Instrument Div.	1366-1368
Rochester Mfg. Co., Inc.	943
Scientific Development Co.	382
Scientific Glass Apparatus, Inc.	332
Standard Scientific Supply Corp.	1131
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Torsion Balance Co., The	328
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Virginia Research Associates, Inc.	1085
Welch Mfg. Co., W. M.	205

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Dicalite Div., Great Lakes Carbon Corp.	201
Ethylene Chemical Corp.	971
General Electric Co., Apparatus Sales Div.	482
*Mundet Cork Corp.	16
Owens Corning Fiberglas Corp.	1266
Pittsburgh Corning Corp.	1239
Synthetic Mica Corp., Subsidiary of Mycalex	930
Titanium Alloy Mfg. Div., Na- tional Lead Co.	234
United States Gasket Co.	21
Westinghouse Electric Corp.	510

INSULATION, FURNACE

Owens-Corning Fiberglas Corp.	1266
Pittsburgh Corning Corp.	1239
Amersil Co., Inc.	190-192-196, 225

JOINTS

Barco Mfg. Co.	439
Chiksan Co.	868-870
Croll-Reynolds Engineering Co., Inc.	1344-1346
Continental-Emaco Co.	1236
*Dore Co., John L.	1295-1297
Marman Div., Aeroquip Corp.	1419
Sealol Corp.	1102
United States Gasket Co.	21
Yarnall-Waring Co.	64

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Alloy Fabricators Div., Continen- tal Copper & Steel Industries, Inc.	1067
Ampco Metal, Inc.	412
*Artisan Metal Products, Inc.	874
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*Dean Thermo-Panel Coil Div., Dean Products, Inc.	184
Downington Iron Works, Inc., Div. of Pressed Steel Tank Co.	131
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*Falcon Mfg. Div., The, of The First Machinery Corp.	1174-1176
*Gifford-Wood Co.	219
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McIntosh Equipment Corp.	1341-1343
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*Pfaudler Co., The, Div. of Pfaud- ler Permutit, Inc.	110, 141
Pressed Steel Tank Co.	631
*Ross & Son Co., Inc., Charles	983
Southwestern Engineering Co.	1250- 1252
Star Tank & Filter Corp.	233
Terriss Div., Consolidated Siphon Supply Co., Inc.	1329-1331
Trent, Inc.	195
United States Stoneware Co., The	111

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*Allis-Chalmers Mfg. Co.	636
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*Bartlett & Snow Co., The C. O.	686
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*Dravo Corp.	1150
*General American Transportation Corp.	436-442
*Hardinge Co., Inc.	582
Koven Fabricators, Inc.	74
*Henneburg & Sons Co., Edw.	1078
Selas Corp. of America	973-975
Standard Steel Corp.	153

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Toledo Scale Co.	157
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LABORATORIES, TESTING

Lennard Co., Inc., P. M.	1227
Sadtler Research Laboratories	1303
Smico, Inc.	1281

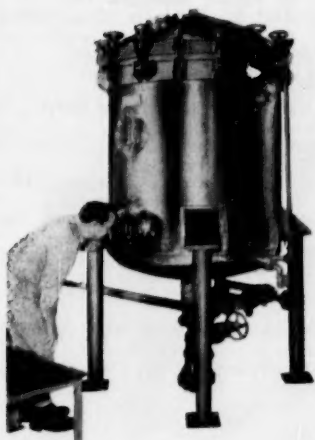
LABORATORY APPARATUS AND SUPPLIES

Amersil Co., Inc.	190-192-196, 225
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*Baker-Perkins, Inc., Chemical Ma- chinery Div.	560-609
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*Bartlett & Snow Co., The C. O.	686
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Bel-Art Products	1098
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Brinkmann & Co., C. A.	360
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Chemiquip Co.	1070
Cooper Alloy Corp.	103
*Dean Thermo-Panel Coil Div., Dean Products, Inc.	1329-1331
Delaware Barrel & Drum Co., Inc.	1187-1189, 1193
*Eastern Industries, Inc.	1275
*Eimco Corp., The	80
Electric Hotpack Co., Inc.	373-375
Entoleter Div., Safety Industries, Inc.	645
Fenwal Inc.	834
Fisher Scientific Co.	386

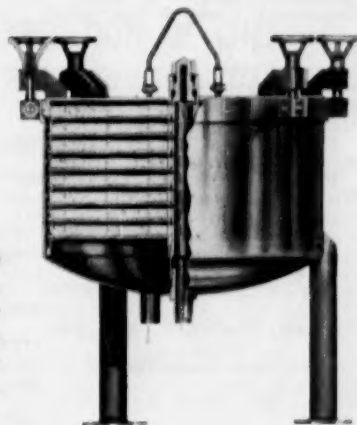
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Niagara FILTERS . . .

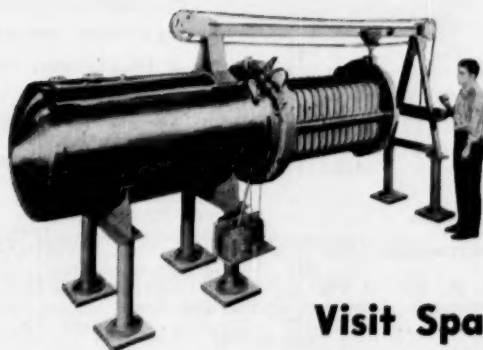
**Flow rates 2-to-5 times greater
than with plate-and-frame presses**



Vertical Tank Style pressure-leaf filter. For rapid liquid clarification. High capacity with minimum floor space. Capacities from 10 G.P.M. and upwards. These filters can be equipped with automatic cake discharge. Available with scavenger leaves.



Horizontal Tank "H" Style pressure-leaf filter. Ideal where recovery or disposal of solids in dry or semi-dry form is important. Cake easily removed in a few minutes by one man. Excellent clarity. Capacities 44 G.P.M. and upwards. Available with scavenger leaves.



Horizontal Plate Filter. For batch filtration where full recovery of both filtrate and cake is essential. Without need for a scavenger leaf, this filter completely eliminates unfiltered "heel".

Visit Space 456, 506, 556

Exposition of Chemical Industries

Niagara FILTERS

A DIVISION OF
American Machine and Metals, Inc.
EAST MOLINE, ILLINOIS

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NIAGARA FILTERS
A Division of American Machine and Metals Inc.
Dept. CEN-1957, EAST MOLINE, ILLINOIS
(Niagara Filters Europe: Kwakelpad 28, Alkmaar, Holland)

Mail me a copy of your new 12-page catalog.
Tell me more about . . .

<input type="checkbox"/> Engineered filtration service	<input type="checkbox"/> Pilot filter rental service
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ATTENTION MR. _____

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*Gifford-Wood Co.	219
Great Western Mfg. Co.	216
Hanovia Chemical & Mfg. Co.	190-192-196, 225
Haveg Industries, Inc.	546
Heil Process Equipment Corp.	1305
Heinicke Instruments Co.	1074
*Industrial Plastic Fabricators, Inc.	1217
Kimble Glass Co., Subsidiary of Owens-Illinois	390
Laboratory Equipment Corp.	905
Laboratory Glass & Instrument Corp.	340
Lennard Co. Inc. P. M.	1297
Luzerne Rubber Co.	435
*Manton-Gaulin Mfg. Co., Inc.	51
Martinson Machine Co.	991
Metalab Equipment Co. Div. of Norbute Corp.	356
Metals & Controls Corp., General Plate Div.	1094
*Mixing Equipment Co., Inc.	146
*Morehouse-Cowles, Inc.	814
Nalge Co.	1106
National Instrument Co.	1070
New Brunswick Scientific Co.	324
New York Laboratory Supply Co., Inc.	1022
*Norcross, Sterling E., Kem Feed Div.	1372
Perkin-Elmer Corp., The	1081-1083
Photovolt Corp.	389
*Pioneer Div., Scott & Williams, Inc.	1146
Podbielniak, Inc.	595
Precision Scientific Co.	370-372
Research Controls	1186
Rietz Mfg. Co.	1231
*Ross & Son Co., Inc., Charles	983
Scientific Glass Apparatus Co., Inc.	332
Scientific Industries, Inc.	1293
Seavy & Sons, M. J.	1071
Selas Corp. of America	973-975
Southwestern Engineering Co.	1250-1252
Standard Scientific Supply Corp.	1131
Stanford Glass Blowing Laboratories	1071
Steiner-Ives Co.	1381
*Sturtevant Mill Co.	421
Superior Electric Co., The	811
Terriss Div., Consolidated Siphon Supply Co., Inc.	1329-1331
Tri-Homo Corp.	214
Tyler Co., The W. S.	574
Welch Mfg. Co.	205
Will Corp. & Subsidiaries, Inc.	395

LABORATORY FURNITURE

Alberene Stone Corp. of Va.	465
Blickman, Inc., S.	325
Browne-Morse Co.	1156
Duralab Equipment Corp.	1245-1247, 1249
Fisher Scientific Co.	386
Hamilton Mfg. Co.	359
Kewaunee Mfg. Co.	398
Laboratory Furniture Co., Inc.	309
Lennard Co., Inc. P. M.	1227
Metalab Equipment Co., Div. of Norbute Corp.	356
Scientific Glass Apparatus Co., Inc.	332
Sheldon Equipment Co., E. H.	336
Welch Mfg. Co., W. M.	205
Will Corp. & Subsidiaries, Inc.	395

LAMPS

Hanovia Chemical & Mfg. Co.	190-192-196, 225
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Westinghouse Electric Corp. . . . 510

LEAD BURNING AND COATING

Heil Process Equipment Corp.	1305
Knapp Mills, Andrews-Knapp Construction Co., Inc.	175
Lawrence Pumps, Inc.	852
Lead Industries Assn.	816
Lead Lined Iron Pipe Co.	70
United States Stoneware Co., The	111
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Inflico Inc.	1163
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LOADERS

*Clark Equipment Co., Construction Machinery Div.	1276-1278-1280, 1309-1311-1313
*Eimco Corp., The	80
Hough Co., The Frank G.	63
Industrial Products Engineering Co.	1215
Link-Belt Co.	165
*Nichols Engineering Co., The	1051
Smico, Inc.	1281
*Sprout, Waldron & Co., Inc.	844-846

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Farval Corp.	158
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Eriez Mfg. Co.	909-911
*Jeffrey Mfg. Co., The	97
*Prater Pulverizer Co.	904-906
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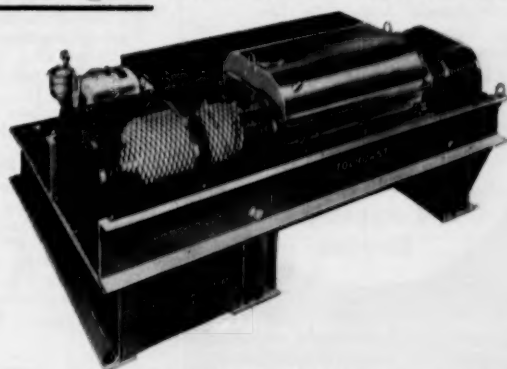
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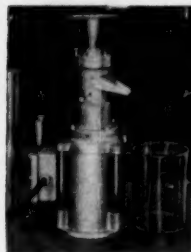
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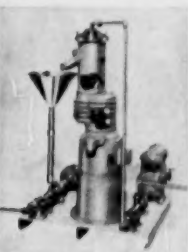
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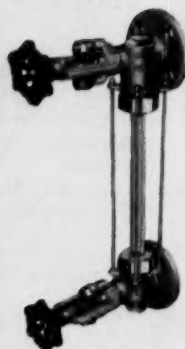


Fig. 2172—Small flush Bottom Tank Valve for 150 W.P. Disc opens into tank. Also available with disc opening into valve (Fig. 2173).

Fig. 1891—Liquid Level Gauge. Offset pattern. Outside screw rising stem and yoke valves.

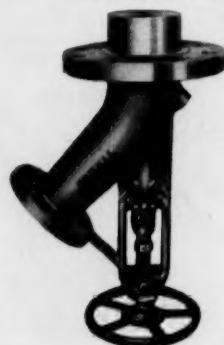


Fig. 2475—Stainless Steel O.S. & Y. Globe Valve for 150 W.P. face to face and end flange dimension are in accordance with latest standards.



Fig. 2453SG—Large Stainless Steel O.S. & Y. Gate Valve for 150 W.P. Available with interchangeable solid or split wedge disc. End flanges conform to MSS SP-42.

Fig. 2475BSW—Stainless Steel Bell-O-Seal Globe Valve for 150 W.P. For handling heavy water, molten metals, etc. Can also be furnished for 300 W.P.

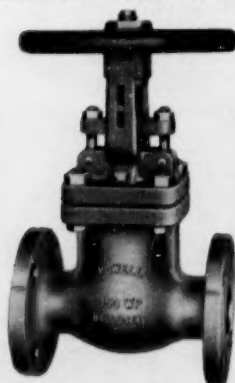
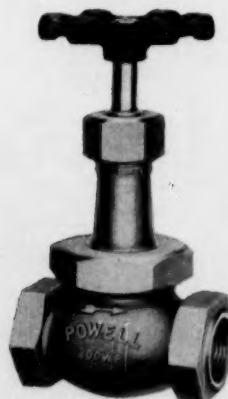


Fig. 1861—Stainless Steel Globe Valve for 200 W.P. Union bonnet, plug type disc.



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Fig. 2194—Small Ni-Resist. O.S. & Y. Gate Valve for 225 W.O.G. Larger sizes, flanged end, and swing check valves in Ni-Resist also available.

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Fig. 1832—Stainless Steel Gate Valve for 200 W.P. Screwed-in bonnet, inside screw rising stem, solid wedge disc.

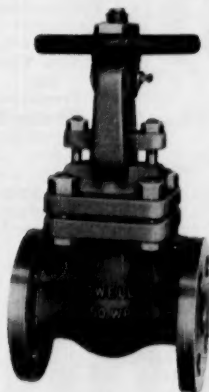


Fig. 2491—Stainless Steel Gate Valve for 150 W.P. Outside screw rising stem and yoke, solid wedge disc. Can be supplied with interchangeable split wedge disc

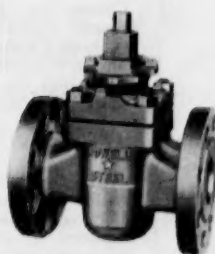


Fig. 1559—Steel Lubricated Plug Valve for 200 W.O.G. Screwed gland type. 6" and larger valves can be furnished for gear operation.



Fig. 2433SS—Large size Stainless Steel Swing Check Valve for 150 W.P. Bolted Cap.



Fig. 2107—Stainless Steel "Y" Valve for 150 W.P. Plug type disc. Face to face and end flange dimensions conform to latest standards.

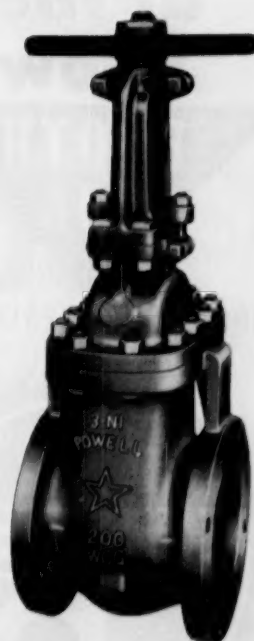
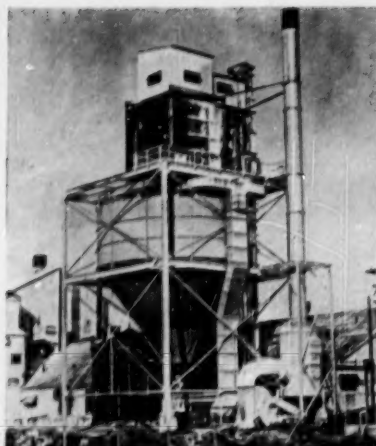


Fig. 1893—Large O.S. & Y. Gate Valve for Paper Mill Service. 3% Nickel Iron Body, bonnet, yoke; stainless steel stem, screwed-in seat rings; Ni-Resist wedge.



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BISHOP

Precious Metal

SALTS & SOLUTIONS



for Superior Performance

Bishop's precise control during the precious metal refining process is your assurance of purity and uniformity.

Backed by a century of accrued manufacturing skills, performed under the most exacting and modern techniques, Bishop's precious metal salts and solutions are of the highest quality obtainable.

Send for a list of over 40 available Precious Metals Salts and Solutions for scientific and industrial applications.

MANUFACTURERS OF

Foils

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Stainless Steel, Nickel & Nickel Alloy Tubing



J. BISHOP & CO. PLATINUM WORKS

Department 55

Malvern, Pennsylvania

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Arenco Machine Co., Inc.	1079
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DAY

EQUIPMENT FOR INDUSTRY

LOW COST, EFFICIENT

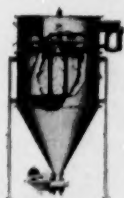
Dust Control

More and more leading companies are depending on DAY for complete dust control service. DAY can recommend and engineer a complete dust control system for the needs of any industrial plant.

Photo at right illustrates a DAY Pneumatic Bag Handling System. The empty bags (containing a residue of carbon black) are carried by air to the bag trap (unit on right side of picture). The air is then cleaned in the DAY "AC" filter at the left in the picture. The other DAY "AC" filter (center background) is on a separate dust control system.

For complete information write for Bulletin 559.

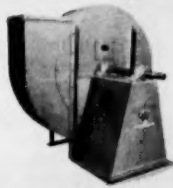
* Licensed by H. J. Hersey, Jr.



Type "RJ" Dust Filter - Highly efficient, combination cyclone and filter. Write for Bulletin 560.



"HV" Dust Separator - A heavy gauge, welded, highly efficient centrifugal dust separator. Write for Bulletin 576.



Type "G" Fans - Statically and dynamically balanced; designed principally for dust control applications. Write for Bulletin 471.

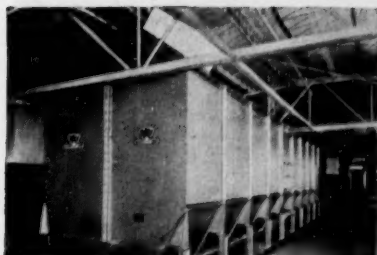


Dual-Clone Dust Separator - Exclusive design gives high efficiency at low resistance. Write for Bulletin 573.

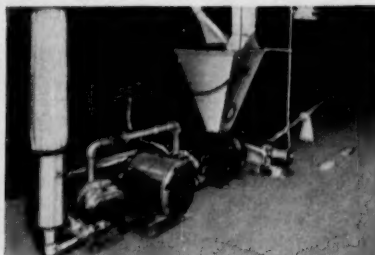


Unit Dust Controllers - Complete, low cost unit combines high efficiency of Dual-Clone and Exhauster. Write for Bulletin 510.

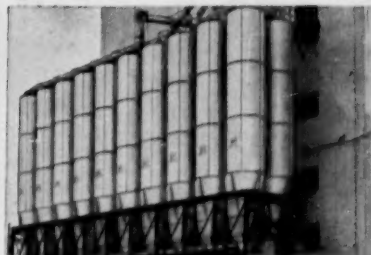
Money-Saving Bulk Material Storage and Handling



A two-section DAY horizontal tank installed in a Canadian plant. Pneumatically loaded and mechanically unloaded. Note air relief on top of tank.



DAY pneumatic conveying systems improve plant efficiency. Installation pictured above required two pumps in series because of long (250 feet) run.



Twenty DAY tanks (above) installed at a large Midwest plant. Tanks serve packaging line as well as truck, railroad loading operation. Each tank holds approximately 20 tons of product.

What's Behind the Swing to DAY Bulk Material Storage and Handling? Many plants with DAY equipment save up to 35¢ on every 100 pounds of material handled. DAY equipment is also safer, cleaner and more efficient than manual material handling. DAY bulk equipment

can be installed anywhere. It is completely sanitary and weather-proof. Find out how much money your plant can save when it is equipped with DAY products for handling and storing bulk materials. For latest information write to DAY for Bulletin 574.

Write for name of your nearest DAY application engineer. He will help you with any dust control or bulk material equipment problem. This service is offered without cost or obligation.



The DAY Company

SOLD IN UNITED STATES by
The DAY Sales Company
856 Third Ave. N.E., Minneapolis 13, Minn.

MADE AND SOLD IN CANADA by
The DAY Company of Canada, Ltd.
P. O. Box 79N, Fort William, Ontario



See
**Ertel At
BOOTH
623**

**FILTERS AND
BOTTLE FILLERS
for the Perfumer**

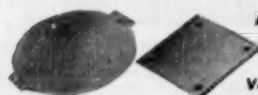


MODEL ESW PORTABLE FILTER—This filter is recommended for small capacity requirements. Accommodates from 4 to 8 12 1/4" dia. filter disks. Easy to set-up and operate.

**PORTABLE VACUUM
BOTTLE FILLER**



Will rapidly fill small or batch lots of material at lowest cost. Fills bottles to uniform height without loss of material. Interchangeable spouts for filling shaker-type bottles to gallons.



**ASBESTOS
FILTER
SHEETS**

Various Sizes

Ertel Asbestos Filter Sheets for ultra polished brilliance are used for many fine perfumes and cosmetics. Available in 10 grades to fit all standard filters. Write regarding samples for superior result tests in your filter.

Write for Illustrated Catalog

**ERTEL
ENGINEERING CORP.**

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Branch Office & Showroom
New York City

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Victor Chemical Works 936-938-940-963
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See the latest in Louis Allis Chemical Motors at Booth 100!



Stop in at the Louis Allis booth for a quick run-down on what's new and important in motors and drives specially designed for the chemical industry! Talk to L. A. engineers — see operating models of a wide range of *brand-new* motor developments. A 15-minute visit at the show to Booth 100 will really open your eyes!

LA-136

LOUIS ALLIS

MANUFACTURER OF ELECTRIC MOTORS AND ADJUSTABLE SPEED DRIVES

CHEMICAL ENGINEERING—Inventory Issue 1957

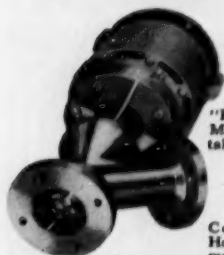
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127

New! In Space 219

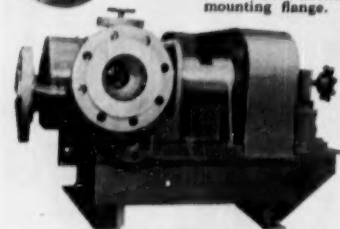
CONTINUOUS FLOW HOMOGENIZING AND MIXING

with G-W Eppenbach
"Pipe-Line"
Homo-Mixer



"Pipe-Line" Homo-Mixer showing intake turbine.

Continuous Flow Homo-Mixer showing mounting flange.



Gifford-Wood "Eppenbach" now provides blending equipment for processing of emulsions, slurries, suspensions, and related mixtures on a continuous flow basis.

Only the G-W Homo-Mixer brings you both continuous flow mixing and high-speed high-shear homogenizing.

Operation is ordinarily "one pass." For further refining, material may be re-circulated or units may be connected in series. The result—highly refined dispersions of small particle size. Write for details.

GIFFORD-WOOD Co.

Eppenbach Div., Dept. E-13

420 Lexington Ave., New York 17, N. Y.

Please send me your free Eppenbach
Fact Book.

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Low-cost Temperature Control — by SARCO

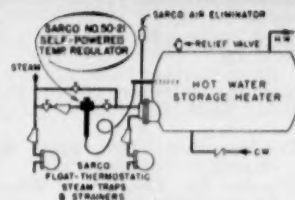
Self-Powered and Electric Indicating



Sarco Temperature Controllers Self-Powered . . . Fully Modulating

Simple as ABC . . . a thermostat with capillary tubing and a valve. That's all! Operated by liquid expansion. Automatic. Self-powered . . . no electricity or compressed air required. Self-contained . . . no exposed mechanism. Packless valve . . . no stuffing box to leak or stick. Easy to install by any pipefitter.

Furnished with thermostats suitable for any liquid or for air in dryers, ovens, air ducts, etc. Valve sizes . . . ½ to 6". Temperature ranges to 300°F. *Bulletin 620-2.*



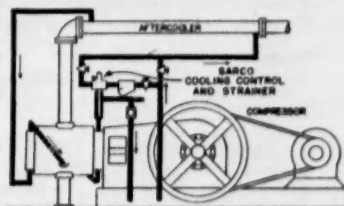
Typical applications: Shell and tube heat exchangers; condensers, oil storage tanks, dryers, etc.



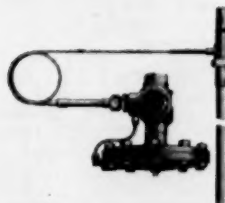
Sarco Cooling Controls Self-Powered . . . Fully Modulating

Simple, compact, automatic thermostatic valve. Eliminates overcooling and undercooling. Saves water. Overall height of ¾" size is only 17½". Self-powered . . . requires no electrical or compressed air hook-up. Valve and bulb all in one unit. No exposed mechanism. Single-seated packless valve . . . not affected by silt or scale-forming minerals.

Valve sizes . . . ¼ to 1½". Temperature ranges between 40° and 210°F. *Bulletin No. 710-B.*



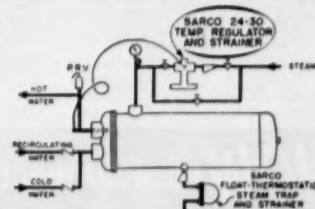
Typical applications: compressors, small engines, water-cooled bearings, condensers, dry cleaning stills, etc.



Sarco Temperature Controllers Self-Powered . . . Single-Seated, Tight-Closing

A simple, self-powered automatic temperature controller with diaphragm-operated, pilot-controlled valve. Designed for intermittent service or service involving long periods with practically no call for steam. Self-powered by liquid expansion . . . no electricity or compressed air needed. Packless.

Valve sizes . . . ½ to 3". Temperature ranges to 300°F. *Bulletin No. 625-B.*



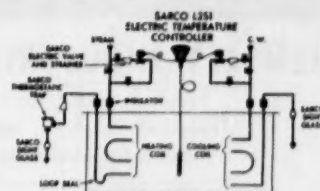
Typical applications: instantaneous heaters, fuel oil pre-heaters, high pressure applications on hot water storage tanks.



Sarco Electric Temperature Controllers Indicating Type

Simple, inexpensive, electric-indicating automatic temperature controller. Sensitive enough to perform many of the functions of much more elaborate recorder-controllers, at a fraction of their cost. Responds to changes of ± ½°F. Adjustable. Large, easy-to-read scale shows both actual and set temperatures.

Temperature ranges between minus 90° and plus 650°F. Offers many sequence combinations such as step-heating. *Bulletin 1025-B.*



Typical applications: plating tanks, processing vats, kettles, chemical tanks, etc.



Sarco Stat Hydraulic Motor Valves Electrically Operated

For remote control by hand or thermostat. Open and shut operation. Can be equipped with semi-modulating mechanism. Powerful hydraulic action operates valves up to 5" single-seated, or 8" double-seated, at pressures up to 175 psi. Ruggedly constructed . . . to withstand severe use without constant supervision and with minimum maintenance. Operates in any position.

For direct connection to 110 volts A. C., 60 cycle current. Valve sizes . . . ½ to 5" single-seated; ½ to 6" double-seated. *Bulletin 1080-A.*

UNDIVIDED RESPONSIBILITY

From one "Complete Line" source . . . SARCO-SARCOTHERM . . . for temperature controllers, steam traps and other heating specialties.

2230-B

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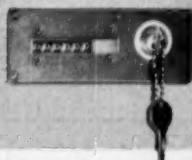
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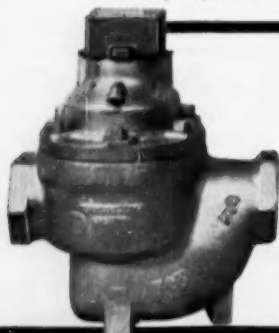
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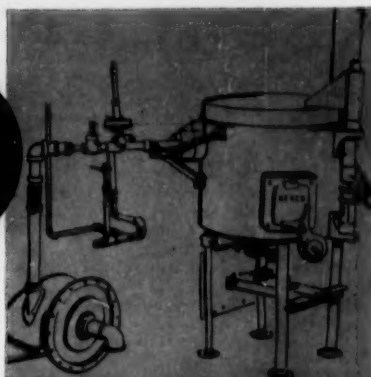
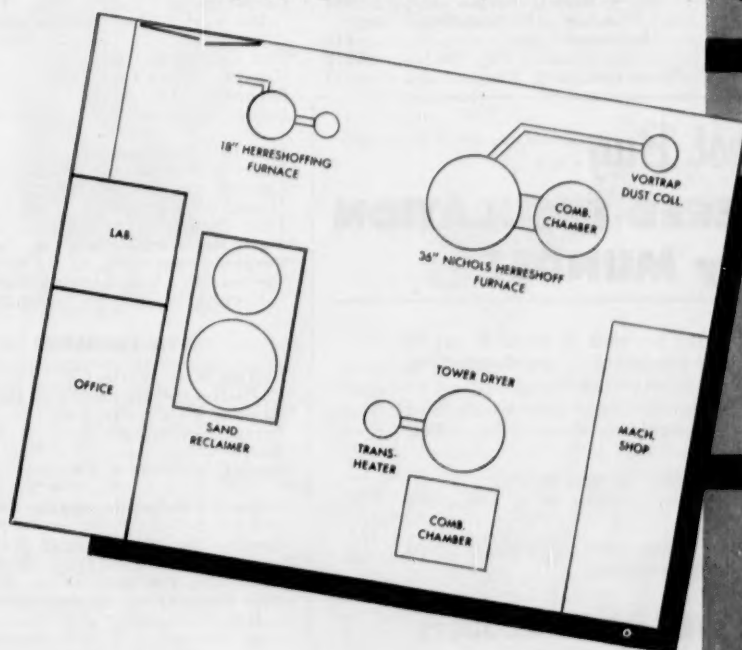
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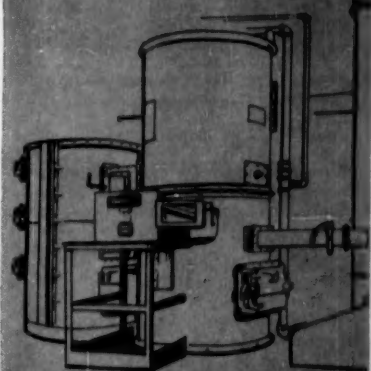
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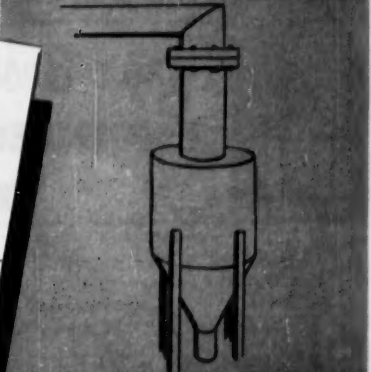
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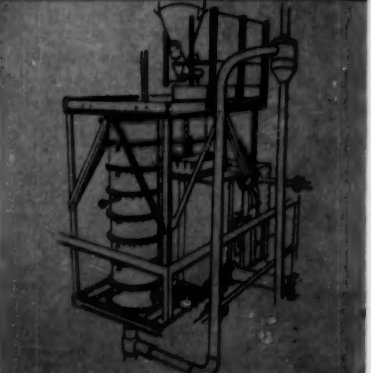
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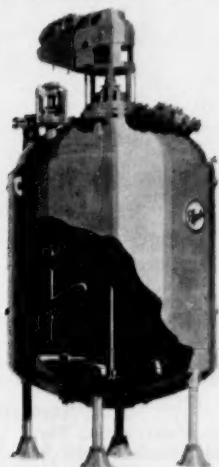
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In many instances, you can take advantage of standard equipment designs which are available from stock at a lower cost than custom-built units. Examples of Pfaudler's corrosion-resistant process equipment follow (for a more complete picture, ask for Bulletin 947):

Pfaudler glassed steel reactors



Standard Pfaudler glassed steel reactors are engineered for processing a wide range of products under a variety of operating conditions in capacities ranging from 1 to 4000 gallons.

Autoclave units of 1, 2 and 3 gallons are built for internal pressure of 750 psi.

Lab and pilot plant units of 5, 10, 20, 30, 50 and 100 gallons are designed for 25 psi (internal) and with heavy-duty top heads, 150 psi.

"E" and "R" Series reactors range from 50 to 4000 gallons and are intended for processing requirements either on a pilot plant or full-scale production basis. Internal pressures vary with sizes and type of top head construction selected.

All types of Pfaudler reactors are equipped with 3-blade impeller type agitators with motor drives, adjustable baffles, various top head openings. For full details on Pfaudler glassed steel reactors, specify Bulletin 939 (Autoclaves), 927 ("P" Series), 923 ("E" Series), 860 and 926 ("R" Series).

Corrosion guarantee. For one year after shipment, Pfaudler glassed steel equipment is guaranteed not to become unserviceable as the result of corrosion, in

terms of operating conditions agreed upon at the time of purchase, or Pfaudler will repair or replace it at no charge.

Pfaudler stainless steel reactors are comparable in design to glassed steel in standard sizes ranging from 5 to 2000 gallons. (Ask for Bulletin 944.) Custom designs include titanium, Herculoy, copper, zirconium, and other special alloys.

Pfaudler columns

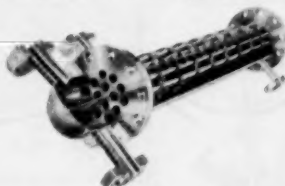


Tray or packed type columns of glassed steel or alloy construction are available for fractionating, stripping, absorption, adsorption, extraction and other allied operations.

Glassed steel columns (standard packed) range from 2" to 48" in diameter. Larger sizes supplied on a custom basis. Any desired length in maximum increments of 10-foot clamped sections. Internal pressures from 100 to 150 psi.

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Pfaudler heat exchangers



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Two weeks delivery on single- and double-pass fixed tube units of 316 stainless steel tubes and carbon steel shell for horizontal, inclined or vertical plane installation. Capacities available are 56, 104, 149, 216 and 316 sq. ft. Larger sizes in five to seven weeks. Ask for Bulletin 949.

Combination glassed steel with alloy heat exchangers often provide the only practical answer for severe corrosives at elevated temperatures and pressures.

Glassed steel double-jacketed shell and thimble types are easily mounted on a glassed steel still for refluxing or distillation.

Glassed steel jacketed return bend types may be designed for use as condensers, heat exchangers, or pipe lines carrying corrosive liquids. Economical to assemble. Re-

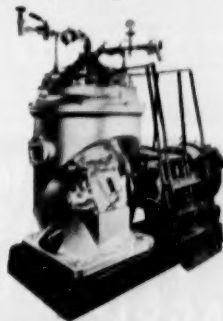
quire minimum head room. Capacities as desired with diameters from 1½" on up.

Pfaudler conical dryer-blenders



Pfaudler glassed steel conical dryer-blenders reduce drying time from days to hours. The rotating, tumbling action achieves simultaneous drying and blending while under vacuum. Glassed inner surface is highly resistant to corrosion and product adhesion. Available in 4, 32, 107 and 255 cubic foot capacities. Details in Data Sheet No. 26.

Pfaudler centrifuges



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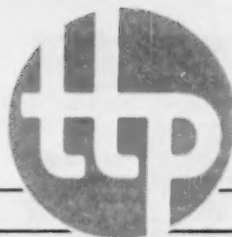
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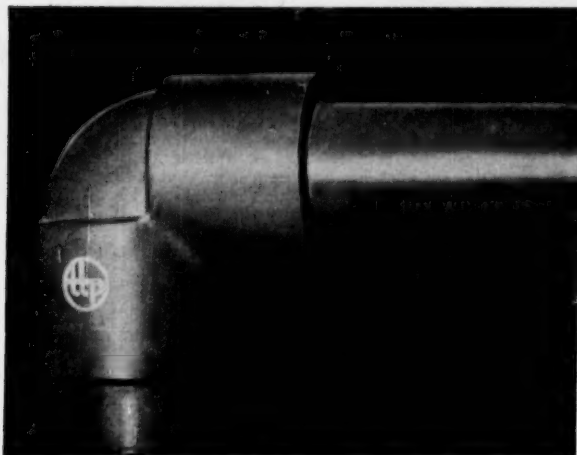
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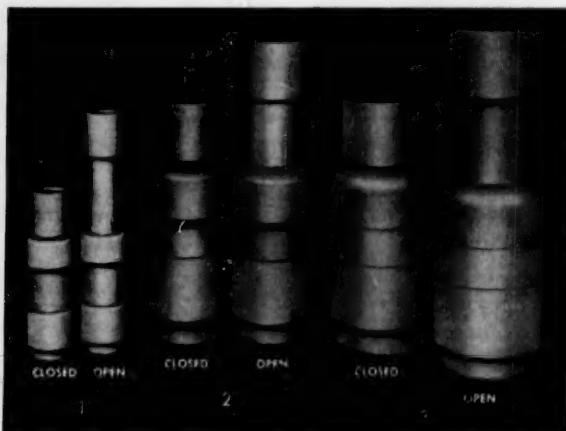
PVC PIPING NEWS



PUBLISHED BY TUBE TURNS PLASTICS, INC. • LOUISVILLE 11, KENTUCKY



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EXPANSION JOINTS. Another "first" in *unplasticized* polyvinyl chloride fittings by Tube Turns Plastics, Inc. For rigid PVC piping subjected to thermal cycles. Slip type. For wide range of corrosive services. Have neoprene rubber "O" ring packing. All sizes allow an expansion of $3\frac{3}{4}$ ". Available in sizes of 1", 2" and 3" and may be used with smaller piping by using reducing bushings. Write for complete information.



CHLORINE PLUS WATER equals corrosion. So, you'll find many water treatment engineers swinging over to PVC piping and **ttp** fittings for chlorination systems for long-lasting, economical construction. Above: 1" PVC piping with solvent cemented **ttp** fittings recently installed at pumping station of Jackson, Michigan.



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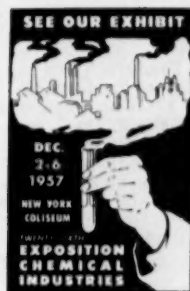
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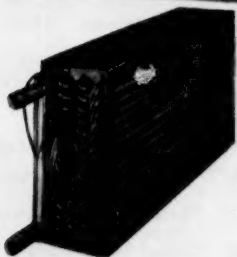
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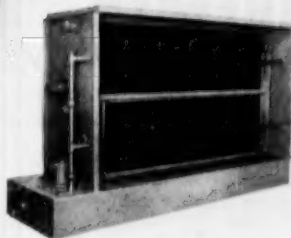
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* For additional information see advertise-
ment in this issue. Chemical Engineering ad-
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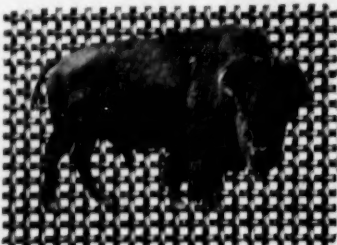
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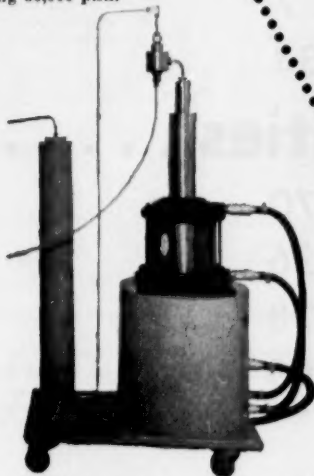


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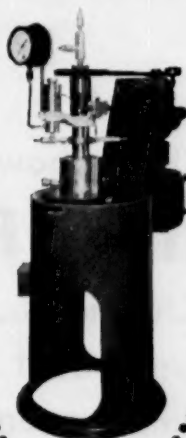
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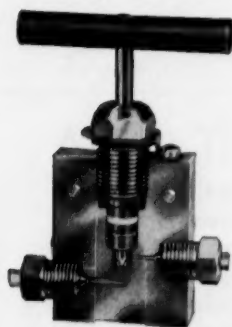


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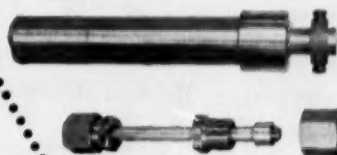
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I INVENTORY

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Here it is: CE's eighth annual inventory of major new production plants in the chemical process industries—569 of them. Included in this comprehensive list are data not only on new plants, but also on expansion of existing plants. You'll find information on all major projects costing \$200,000 or more planned, under way or completed during the last six months of 1956 and the first seven months of 1957. CE's field editors have reviewed it for accuracy. It's the most complete inventory of its kind available anywhere. Broken down for your convenience as follows:

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• Fertilizers & Fertilizer Chemicals

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Allied Chemical & Dye Corp. (Nitrogen Div.)	Hopewell, Va.	Pebbled ammonium nitrate, ..	.....	Plant now in production.
Allied Chemical & Dye Corp. (General Chemical Div.)	Newell, Pa.	Nitric acid, .....	.....	Expansion has doubled capacity.
American Cyanamid,	Brewster, Fla.	Triple superphosphate, .....	.....	Expansion has boosted capacity by 200,000 tons/yr.
American Potash & Chemical Corp.	Trona, Calif.	Granular potash,	750,000	Expansion has doubled production.
Ammonia Chemical Corp. of Calif.	Huron, Calif.	Anhydrous ammonia,	5 million	Plant now under construction. Capacity: 40,000 tons/yr.
Atlantic Refining Co.,	Philadelphia, Pa.	Ammonia, .....	.....	Plant expansion adds 40,000 tons/yr. in 1957.
Atlas Powder Co.,	Atlas, Mo.	Nitric acid, ammonium nitrate	4 million	New plant under construction will be in full production March 1958. Acid Unit, designed by Chemical & Industrial Corp, will make 250 tons/day of nitric acid.
Best Fertilizer Co.,	Lathrop, Calif.	Sulfuric acid, pelleted fertilizers	1 million	Plant completed March 1957.
Best Fertilizer Co.,	Lathrop, Calif.	Ammonia, .....	.....	Planning 100-ton/day plant.
California Ammonia Co.,	Lathrop, Calif.	Ammonia, .....	.....	New 100-ton/day plant planned, to be on stream Sept. 1958.
California Spray Chemical Corp., ..	Richmond, Calif.	Nitrogen & phosphate fertilizers	3.5 million	New plant on stream in Oct. 1956.
Calumet Nitrogen Products Co., ..	Hammond, Ind.	Ammonia, nitrogen fertilizer.	9 million	New 300-ton/day plant on stream.
Central Farmers Fertilizer Co., ..	Georgetown, Idaho, ..	Calcium metaphosphate,	13.5 million	New plant under construction; private industry's first.
Coastal Chemical Corp.,	Pascagoula, Miss.	Phosphate fertilizer,	2 million	Plant will produce 75 tons/day of phosphoric acid and 350 tons/day of granulated ammonium phosphate fertilizer. On stream early next year.
International Minerals & Chemical Corp.	Bartow, Fla.	Sulfuric acid, triple superphosphate, dicalcium phosphate	2.9 million	Expansion completed June 1957.
International Minerals & Chemical Corp.	Fairfax, Minn.	Fertilizers,	500,000	Expansion of fertilizer mixing plant completed early 1957.
Mississippi Chemical Corp.,	Yazoo City, Miss.	Nitric acid, .....	.....	New plant of 120-ton/day capacity will be completed early next year.
Monsanto Chemical Co.,	Pueblo, Colo.	Phosphoric acid, .....	.....	New plant completed Dec. 1956.
National Potash Corp.,	Carlsbad, N. M.	Potash,	17.5 million	New 400,000-ton/yr. mine and refinery now in operation.
Northwest Refining & Chemical Co.	Spokane, Wash.	Ammonium sulfate, fertilizers, zinc oxide	.....	New plant completed 1956.
Ozark-Mahoning Corp.,	Tulsa, Okla.	Ammonium phosphate, wet-process phosphoric acid	1 million	New plant completed early 1957.
Pennsalt Chemicals,	Portland, Ore.	Ammonia, .....	.....	Expansion, completed early 1957, boosts capacity to 30 tons/day.

About This Section . . .

Eighth in Chemical Engineering's annual series, this inventory of plants and facilities lists 569 projects. They're major new chemical processing plants or facilities announced, planned, under construction or completed in the U. S. from July 1956 through August 1957. No minor projects (less than \$200,000) are included.

Listings have been compiled from many sources. They've been checked by CE's field editors for accuracy, completeness and current status.

For projects not included in this July 1956-August 1957 period, refer to tabulations on new plants and facilities first compiled by Chemical Engineering and

published annually since 1951 in these issues: February 1951, 1952, 1953, January 1954, Inventory 1954, 1955, 1956.

Previous surveys have listed more than 4,000 new construction projects. This eighth inventory brings to better than 4,600 the most comprehensive tabulation of its kind generally available.

Literature listings in this section (p. 162) are descriptions of manufacturer's publications. They're free. You may ask for any that you want by using the Reader Service postcard (inside back cover). The postcard may not, obviously, be used to request more information about the plant inventory which begins on this page.

New Plants & Facilities

1957 INVENTORY

• Fertilizers & Fertilizer Chemicals - Continued

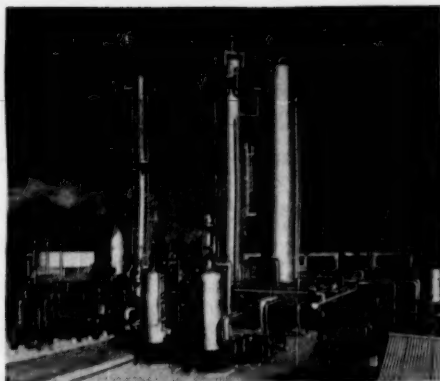
FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Petroleum Chemicals, Inc.	Lake Charles, La.	Ammonia	12.5 million	New 100,000-ton/yr. plant to be completed Jan. 1958.
Phillips Pacific Chemical Co.	Kennewick, Wash.	Ammonia, anhydrous	15 million	New plant in production.
Rohm & Haas Co.	Deer Park, Tex.	Ammonia (and methanol)	20 million	Work on new facilities to be completed in late fall. Ammonia capacity: 50,000 tons/yr.
Shea Chemical Corp.	Dallas, Tex.	Polyphosphates	6.5 million	New plant on stream, puts out 75,000 tons/yr. of phosphoric acid, 60,000 tons/yr. of sodium polyphosphate.
Shell Chemical Corp.	Ventura, Calif.	Urea		New 100-ton/day plant on stream Oct. 1956. First U. S. plant to use Montecatini process.
Southern Nitrogen	Savannah, Ga.	Ammonia (nitric acid, urea, nitrogen solutions, ammonium nitrate)	14 million	New plant, due on stream in 1957, has 88,000-ton/yr. capacity.
Southwest Agrochemical	Phoenix, Ariz.	Ammonium phosphate fertilizer		New plant on stream.
Spencer Chemical	Henderson, Ky.	Nitric acid		New 40,000-ton/yr. plant now in operation.
Spencer Chemical Co.	Henderson, Ky.	Urea		New unit slated to be on stream in summer 1958, will produce 100 tons/day of urea
Spencer Chemical Co.	Vicksburg, Miss.	Nitric acid, ammonium nitrate, ammoniating solutions	1.5 million	Expanding facilities; new nitric-acid units designed by Chemical & Industrial Corp.
St. Paul Ammonia Products	Pinebend, Minn.	Ammonia	15 million	New plant, on stream in 1957, has 70,000-ton/yr. capacity.
Texaco	Lockport, Ill.	Ammonia	12 million	New 180-ton day plant will be on stream late this year.
U. S. Industrial Chemicals	Tuscola, Ill.	Phosphoric acid		New plant, on stream, adds 60,000 tons/yr. of phosphoric acid to ammonia and sulfuric acid capacity.
U. S. Steel Co., Columbia-Geneva Div.	Provo, Utah	Anhydrous ammonia, prilled ammonium nitrate, nitrate solutions		New plant, on stream in 1957, has 70,000-ton/yr. capacity.
Western Phosphates	Garfield, Utah	Phosphate fertilizers	2 million	Expansion completed 1957.
Westvaco Chlor-Alkali	Newark, Calif.	Sodium and potassium phosphates		Plant expansion completed late 1957.

• Fine Organic Chemicals

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Air Reduction Chemical Co.	Calvert City, Ky.	Methyl butynol, methyl pentynol, vinyl stearate		New plants, to use Airco-developed processes, will be completed early in 1958. Vinyl capacity: 2 million lb./yr.
American Cholesterol Products	Edison, N. J.	Sterol emulsifiers, lanolin derivatives		New plant and laboratory completed.
A. R. Maas Chemical Co.	South Gate, Calif.	Sequestering agents (ethylene diamine tetra-acetic-acid)	250,000	New plant nearly completed.
Chas. Pfizer & Son		Lysine		Plant now in operation.
Cowles Chemical Co.	Skaneateles Falls, N. Y.	Niacin		New plant is now in commercial production.
Eli Lilly & Co.	Lafayette, Ind.	Diethylstilbestrol, general chemicals	3.4 million	Expansion, to be complete late 1957, boosts capacity 50%.
Heyden Newport Chemical Corp.	Fords, N. J.	Salicylaldehyde		New plant on stream early 1958.
Heyden Newport Chemical Corp.	Pensacola, Fla.	Methyl isopropyl catechol		Plant under construction; projected capacity: 500,000 lb./yr.
Hoffman-La Roche	Nutley, N. J.	Terpenes, oxygenated terpene derivatives	5 million	New unit utilizes first commercial process for making terpenes from simple organic chemicals, now on stream.
Hoffman-La Roche	Nutley, N. J.	Vitamins A, E, K		New unit, using company-developed process, will synthesize vitamins from acetone and acetylene. Unit is nearing completion.
Koppers Co.	Arroyo, W. Va.	Niacin	2 million	New 500,000-lb./yr. plant is now in production.
Merek & Co.	Danville, Pa.	Niacinamide (Vitamin B)		New plant, now completed, has capacity enough to supply most of nation's requirements.
Metal & Thermit Corp.	Carrollton, Ky.	Organotin chemicals	3 million	New plant now under construction.
Milwaukee Sewage Co.	Milwaukee, Wis.	Vitamin B-12	62 million	New B-12-from-milorganite plant to be completed late 1957.
Monsanto Chemical Co.	Everett, Mass.	Chloroisocyanuric acids		New multimillion-lb./yr. plant produces di- and tri-chloroisocyanuric acids via continuous process.
R. J. Strassenburgh Co.	Rochester, N. Y.	Pharmaceuticals	1 million	New facilities will house research and production facilities.
van Ameringen-Haebler	Union Beach, N. J.	Aromatic chemicals for soaps and perfumes	1.5 million	Units now in operation.

FOR MORE INFORMATION ABOUT THIS SECTION, SEE P. 145

How serves the CHEMICAL INDUSTRY



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• Heavy Organics

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Acheson Dispersed Pigments Co.	Orange, Tex.	Carbon-black dispersion.		Major expansion completed.
Acheson Dispersed Pigments Co.	Xenia, Ohio	Carbon-black dispersion.		Major expansion completed.
Allied Chemical & Dye Corp. (Barrett Div.)	Frankford, Pa.	Naphthalene.		New purification unit planned.
Allied Chemical & Dye Corp. (Barrett Div.)	Shady Side, N. J.	Phthalonitrile.		New plant completed Oct. 1957.
American Cyanamid.	Willow Island, W. Va.	Aniline.		New 24-million-lb./yr. plant under construction.
Amoco Chemicals Corp.	Joliet, Ill.	Xylene-based chemicals (phthalic anhydride, isophthalic acid, terephthalic acid, dimethyl terephthalate, dimethyl isophthalate, benzoic acid)	10 million	Plant planned. Capacity: 60 million lb./yr.
Borden Co.	Dominguez, Calif.	Pentaerythritol, formaldehyde		Capacity: 10 million lb./yr. of pentaerythritol; 40 million lb./yr. of formaldehyde.
Borden Co.	Fayetteville, N. C.	Formaldehyde.		New plant brought on stream in early 1957.
Borden Co.	Kent, Wash.	Formaldehyde.		New plant went on stream in Feb. 1957. Capacity: 36 million lb./yr.
Calcasieu Chemical Corp.	Lake Charles, La.	Ethylene glycol.	11 million	New plant under construction by Petroleum Chemicals, Inc. To be on stream in early 1958, plant to produce intermediate ethylene oxide via Shell ethylene oxidation process.
Celanese Corp.	Bishop, Tex.	Formaldehyde, methanol, acetaldehyde, acetone		Plant expansion completed in late 1957.
Celanese Corp.	Bishop, Tex.	Trimethylol propane.		Will be completed by year's end, will use company-developed aldolizing processes.
Celanese Corp.	Pampa, Tex.	Acrylate ester.		New 15-million-lb./yr. plant scheduled on stream late 1957.
Chemstrand Corp.	Pensacola, Fla.	Adipic acid.		Expansion due in 1957.
Commercial Solvents Corp.	Sterlington, La.	Methanol, nitrogen products.	8 million	Expansion completed Aug. 1957.
Cumberland Corp.	Lexington, Ky.	Furfural.	3 million	Wood-distillation plant now in production, putting out 50,000-75,000 tons/yr.
Diamond Alkali Co.	Deer Park, Tex.	Chlorohydrocarbons (perchloroethylene, polyvinyl chloride), hydrochloric acid		Expansion has doubled plant capacity.
Diamond Alkali Co.	Deer Park, Tex.	Acetylene.	10 million	New 40-ton/day plant in planning stage.
Dow Chemical Co.	Bay City, Mich.	Ethylene.		New plant in engineering phase, scheduled for Jan. 1958.
Dow Chemical Co.	Freeport, Tex.	Acetylene, methyl acetylene.		New plant completed 1957.
Dow Chemical Co.	Freeport, Tex.	Ethylene diamine.		New plant completed, makes product of 92% purity or greater.
Dow Chemical Co.	Freeport, Tex.	Ethylene oxide, methyl chloroform, 45 million methylene chloride, styrene (chlorine-caustic, magnesium)	45 million	Expansion of facilities completed 1957.
Dow Chemical Co.	Freeport, Tex.	Synthetic glycerol.		New 36-million-lb./yr. unit planned, will be in production by March, 1958.
Dow Chemical Co.	Plaquemine, La.	Ethylene and propylene oxides and glycols, chlorinated solvents.		New facilities under construction.
Du Pont.	Belle, W. Va.	Adipic acid.	Multimillion	Expansion, due for completion this year, will boost capacity by about 75%.
Du Pont.	Victoria, Tex.	Adiponitrile.		Expansion boosts capacity by one-third.
Easambia Chemical Corp.	Santa Rosa County, Fla.	Methanol.		New plant planned, will make 16 million gal./yr.
Esso Standard Oil Co.	Linden, N. J.	Ethylene.		New unit now on stream.
Food Machinery & Chemical Corp.	South Charleston, W. Va.	Carbon tetrachloride.		Expansion will double capacity. To be completed early 1958.
Foremost Food & Chemical Co.	Oakland, Calif.	Fatty acids, methyl esters.		Firm has doubled capacity.
General Aniline & Film Corp.	Calvert City, Ky.	High-pressure acetylene chemicals	6 million	Expansion completed Dec. 1956.
General Aniline & Film Corp.	Calvert City, Ky.	Surface active agents.		New plant in operation.
General Aniline & Film Corp.	Linden, N. J.	Ethylene oxide, ethylene glycol	8 million	New plant completed in 1957. Capacity 60 million lb./yr. oxide, 35 million lb./yr. glycol.
General Aniline & Film Corp.	Linden, N. J.	Surfactants, anionic detergents		New units now on stream.
Glidden Co.	Port St. Joe, Fla.	Tall oil, crude and refined fatty acids, tall-oil resins		New plant, on stream early 1957, handles 50,000 tons/yr. of soap skimmings.
Gulf Oil Corp.	Port Arthur, Tex.	Benzene, toluene.		Construction on 30-million-gal./yr. unit began this summer, will be completed in late 1958.
Hercules Powder Co.	Gibbstown, N. J.	Para-cresol.		New unit, on stream early in 1957, will be joined by another similar unit of about the same capacity, 3 million lb./yr.
Hercules Powder Co.	Louisiana, Mo.	Formaldehyde.		New facilities have capacity of 100 million lb./yr. of formaldehyde.
Hercules Powder Co.	Louisiana, Mo.	Methanol.		New 70-ton/day methanol unit scheduled for completion soon.
Hercules Powder Co.	Louisiana, Mo.	Pentaerythritol.		New 24-million-lb./yr. unit now on stream.

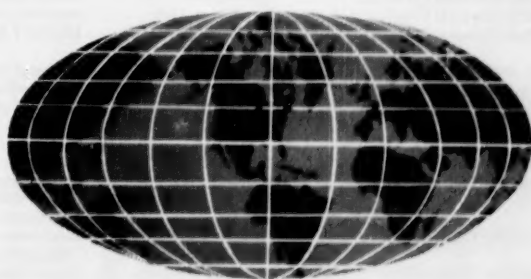
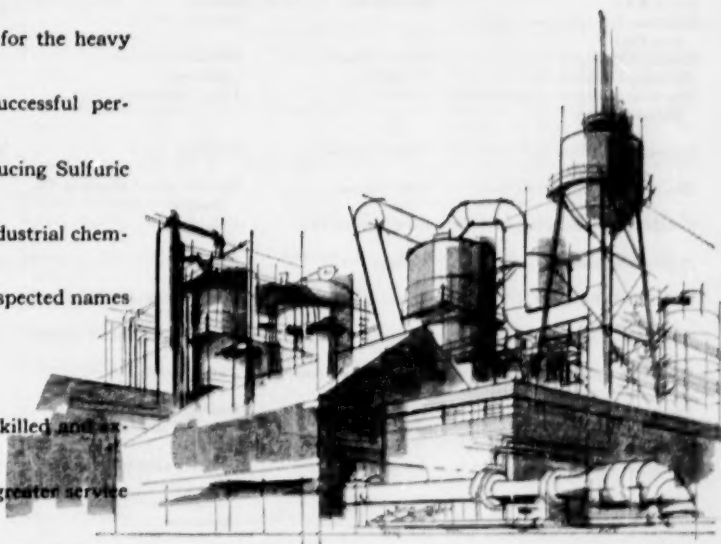
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New Plants & Facilities

1957 INVENTORY

• Heavy Organics - Continued

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Hercules Powder Co.	Savannah, Ga.	Refined tall oil products.		New plant completed Dec. 1956.
Hayden Newport Chemical Corp.	Fords, N. J.	Pentaerythritol.		New plant scheduled for completion late 1957.
Humble Oil & Refining.	Baytown, Tex.	Benzene.		New plant will make 24 million gal./yr., to be completed early 1958.
Humble Oil & Refining Co.	Baytown, Tex.	Ethylene.		New 80-million-lb./yr. ethylene recovery unit under construction, due on stream mid-1958.
Jefferson Chemical Co.	Port Neches, Tex.	Ethylene, ethylene oxides, ethylene glycol, propylene oxide, propylene glycols		Boosting ethylene capacity, doubling ethylene and propylene glycol capacity, upping ethylene oxide capacity by 50%. Expansion to be completed 1958-1959.
Koppers, Co.	Arroyo, W. Va.	Aromatic coal-tar chemicals.		New plant completed late 1956.
Linde Co.	Montague, Mich.	Acetylene.		Construction completed in late 1956.
Liquid Carbonic Corp.	Fresno, Calif.	Acetylene.		New plant now under construction.
Merek & Co.	Danville, Pa.	Sorbitol.		
Merichem Co. (Jefferson Lake Sulphur Co.)		Cresylic acid.		Firm is doubling plant capacity to about 2.5 million gal./yr.
Monsanto Chemical Co.	Everett, Mass.	Phthalic anhydride.		Expansion has boosted capacity by 60%.
Monsanto Chemical Co.	Luling, La.	Adipic acid.		New plant expected on stream in 1957.
Monsanto Chemical Co. and Emery Industries, Inc.	Nitro, W. Va.	Tall oil distillates.	4 million	New plant, under construction by Badger Mfg. Co., is scheduled for completion nearly next year.
Monsanto Chemical Co.	Texas City, Tex.	Ethylene.	Multimillion	Expansion has upped capacity 150%. Will use ethylene production internally.
Olin Mathieson Chemical Corp.	Lake Charles, La.	Unsymmetrical dimethyl hydrazine		New plant on stream Feb. 1957.
Petroleum Chemicals Inc.	Lake Charles, La.	Ethylene.		New 20-million-bbl./yr. ethylene plant under construction, expected on stream Jan. 1958.
Phillips Chemical Co.	Sweeny, Tex.	Ethylene.	12.4 million	New plant in operation. Capacity: 180 million lb./yr.
Pitt-Consol Chemical Co.	Cresap, W. Va.	Cresylic acids, cresols, phenols		Plant planned. Estimated capacity 40 million lb./yr. Target on-stream date: late 1958.
Pitt-Consol Chemical Co.	Newark, N. J.	Cresylic acids, cresols, phenols	3.5 million	New plant, on stream in late 1956, turns out an estimated 20 million lb./yr.
Pittsburgh Coke & Chemical.	Neville Island, near Pittsburgh, Pa.	Phthalic anhydride.	3 million	Expansion has doubled capacity.
Portland Gas & Coke Co.	Portland, Ore.	Benzol, Toluol.		New facilities are now under construction.
Rayonier, Inc.	Jesup, Ga.	Chemical cellulose.	25 million	New plant, scheduled on stream late 1957, has 100,000-ton/yr. capacity.
Reichhold Chemicals, Inc.	Asusa, Calif.	Phthalic anhydride.	2 million	New 10-million-lb./yr. plant went on stream Aug. 1957.
Reichhold Chemicals, Inc.	Tacoma, Wash.	Formaldehyde.		New 20-million-lb./yr. unit is now in operation.
Rohm & Haas Co.	Deer Park, Tex.	Acetylene.	10 million	New acetylene plant finished in mid-1957; probable end use for product: acrylic esters.
Rohm & Haas Co.	Deer Park, Tex.	Methanol (and ammonia).	20 million	Work on new facilities completed in late fall.
Shell Chemical Corp.	Denver, Colo.	Methyl parathion.		New unit now completed.
Shell Chemical Corp.	Dominguez, Calif.	Isopropyl alcohol.		Expansion under way, due on stream 1958.
Shell Chemical Corp.	Deer Park, Tex.	Isopropyl alcohol.		Plant expansion will boost capacity to 20 million lbs./yr. by 1958.
Shell Chemical Corp.	Noreo, La.	Isopropyl alcohol.		Plant expansion due for completion in 1958.
Shell Chemical Corp.	Noreo, La.	Methyl ethyl ketone.		New plant due on stream late 1957.
Spencer Chemical Co.	Calumet City, Ill.	Formaldehyde.		Plant expansion completed Jan. 1957.
Standard Oil (Calif.)	Richmond, Calif.	Paraxylene.	3 million	New unit scheduled to be ready in early 1958, will boost capacity by 25 million lb./yr.
Standard Oil (Calif.)	Richmond, Calif.	Polybutane.	1.75 million	Expanding unit.
Stauffer Chemical Co.	Louisville, Ky.	Carbon tetrachloride, methylene chloride, chloroform, hydrochloric acid		New plant on stream May 1957.
Stauffer Chemical Co.	Omaha, Neb.	Insecticides: DDT, aldrin, heptachlor		New unit completed, intended to supply Mid-west areas.
Stephan Chemical Co.	Joliet, Ill.	Nonyl, dinonyl, dodecyl phenols; alkyl and aryl sodium toluene, xylene sulfonates.	1 million	New plant under construction.
Stepan Chemical Co.	Milledale, Ill.	Methyl laurate, stearate, palmitate	400,000	New plant now on stream, uses Stepan-designed process. Total capacity: 5 million lb./yr.
Texas Co.	Port Arthur, Tex.	Diisobutylene.		New plant, now on stream, turns out 8 million lb./yr.
Texas Eastman Co.	Longview, Tex.	Neopentyl glycol.		New plant now under construction.
Trubee Laboratories (Truland Chemical Co. Div.)	East Rutherford, N. J.	Organic solvents, glycols, plasticizers		Expansion scheduled for completion 1957.
Union Carbide Chemicals Co.	Charleston, W. Va.	Morpholine.		Expansion planned, will double capacity.
Union Carbide Chemicals Co.	Institute, W. Va.	Fluorocarbons.		New 50-million-lb./yr. unit will be on stream in late 1958.
Union Carbide Chemicals Co.	Putnam County, W. Va.	Ethylene, propylene, ethanol, ethylene oxide, isopropanol	Estimated total cost: over 50 million	New plants planned. Initial ethylene oxide capacity: 150 million lb./yr.
Union Carbide Chemicals Co.	Seadrift, Tex.	Ethanolamines.		Expansion has doubled capacity.

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Union Carbide Chemicals Co.	Texas City, Tex.	Oxochemicals. ....	.....	New facilities scheduled for completion Fall 1957
Union Carbide Chemicals Co.	Torrance, Calif.	Ethylene glycol, ethylene oxide, polyethylene	30 million	Plants on stream Nov. 1956. Ethylene glycol capacity: 5-10 million gal./yr. Polyethylene capacity: 60 million lbs./yr.
U. S. Industrial Chemicals.	Tuscola, Ill.	Isobutric acid. ....	.....	New plant completed mid-1957.
U. S. Rubber Co.	Naugatuck, Conn.	Organics. ....	.....	Plant expansion boosts capacity by 15%.
Westvaco Chlor-Alkali.	Charleston, W. Va.	Unsymmetrical dimethyl hydrazine	.....	New plant completed fall 1956.
Wyandotte Chemical Corp.	Geismar, La.	Ethylene oxide, ethylene glycol (chlorine-caustic)	30 million	Plant expansion under way.

• Inorganics

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Air Products, Inc.	Littleton, Colo.	Liquid oxygen.	2.8 million	New plant now under construction.
Air Reduction Co.	Chicago, Ill.	Liquid oxygen, nitrogen, argon	7.5 million	New air separation plant now on stream, 55 tons/day of oxygen, 15 tons/day nitrogen, 3½ tons/day argon.
Air Reduction Pacific Co.	Bassett, Calif.	Liquid oxygen, nitrogen, argon	7.5 million	New plant scheduled for completion late this year. Capacity: 55 tons/day oxygen, 15 tons/day nitrogen, 3½ tons/day argon.
Air Reduction Sales Co.	Acton, Mass.	Liquid oxygen, nitrogen, argon	Over 9 million	New plant now under construction, scheduled for completion in 1958.
Air Reduction Sales Co.	Altam, Ill.	Oxygen, nitrogen, argon.	800,000	New plant completed Oct. 1956.
Air Reduction Sales Co.	Butler, Pa.	Liquid oxygen, nitrogen, argon	3 million	Expansion completed Dec. 1956. Capacity: 225 tons/day.
Air Reduction Sales Co.	Riverton, N. J.	Liquid oxygen, nitrogen, argon	500,000	Plant expansion will be completed April 1957.
Allied Chemical & Dye Corp. (Solvay Process Div.)	Brunswick, Ga.	Chlorine-caustic. ....	.....	New 250-ton/day facilities due on stream in 1958
Allied Chemical & Dye Corp. (General Chemical Div.)	East St. Louis, Ill.	Sulfuric acid. ....	.....	Expansion completed Oct. 1956 boosts capacity 35%.
Allied Chemical & Dye Corp. (General Chemical Div.)	Elizabeth, N. J.	Sulfuric acid. ....	.....	New unit on stream in fall 1957.
Allied Chemical & Dye Corp. (General Chemical Div.)	Port St. Joe, Fla.	Liquid aluminum sulfate. ....	.....	Plant planned.
Allied Chemical & Dye (Solvay Process Div.)	Syracuse, N. Y.	Hydrogen peroxide. ....	.....	New plant on stream late 1956.
American Cyanamid.	Hamilton, Ohio.	Sulfuric acid. ....	.....	New 200-ton/day plant on stream late 1956.
American Cyanamid.	Savannah, Ga.	Titanium dioxide. ....	.....	Expansion, boosting output to 72,000 tons/yr.
American Potash & Chemical Corp.	Aberdeen, Miss.	Sodium chlorate.	5 million	New plant, scheduled for completion in mid-1958, will have initial production of 15,000 tons/yr.
Apache Powder Co.	Curtiss, Ariz.	Ammonia.	1 million	New plant due on stream late 1957, 15 tons/day capacity.
A. R. Maas Co.	Richmond, Calif.	Phosphoric acid, phosphate catalyst plant	1 million	New plant planned.
Berkeley Chemical Corp.	Berkeley Heights, N. J.	Cuprous chloride. ....	.....	Expansion has doubled production.
Chemical Lime Co.	Baker, Ore.	Lime.	1.2 million	New 75,000-ton/yr. plant now on stream.
Climax Molybdenum.	Langeloth, Pa.	Molybdic oxide.	900,000	New unit adds 3 million lb./yr. of 99.5% pure oxide to plant capacity, is now operating.
Columbia-Southern Chemical Corp.	Barberton, W. Va.	Hydrogen peroxide. ....	.....	New plant under construction.
Columbia-Southern Chemical Corp.	Natrium, W. Va.	Chlorine-caustic. ....	.....	Expansion, boosting capacity by 160 tons/day to 760 tons/day total.
Davison Chemical Co. (Div. of W. R. Grace & Co.)	Casper, Wyo.	Sulfuric acid.	2 million	New, 200-ton/day plant scheduled to go on stream July 1958.
Diamond Alkali.	Deer Park, Tex.	Caustic-chlorine.	Multimillion	Expansion now under way, due for completion in 1958. Boosts capacity by 225 tons/day.
Dow Chemical Co.	Pittsburg, Calif.	Chlorine-caustic potash. ....	.....	Expansion, completed May 1957, triples output of caustic potash.
Dow Chemical Co.	Plaquemine, La.	Chlorine-caustic. ....	.....	New plant due on stream in 1958, will have 300-ton/day capacity.
Du Pont.	Belle, W. Va.	Nitric acid. ....	.....	New 40,000-ton/yr. plant due on stream in 1957.
Du Pont.	Columbia Park, Ohio.	Sulfuric acid. ....	.....	New plant completed Nov. 1956.
Du Pont.	Ecorse, Mich.	Sulfuric acid. ....	.....	New plant planned.
Du Pont.	Memphis, Tenn.	Sodium chloride. ....	.....	New unit will up capacity by 50%
Du Pont.	New Johnsonville, Tenn.	Titanium dioxide. ....	.....	New plant, using Du Pont's chloride process, will turn out 125 tons/day of pigment, will be on stream early in 1959.
Edna Bay Stone Co.	Vancouver, Wash.	Calcium carbonate.	5 million	New limestone processing plant planned.
Ethyl Corp.	Joliet, Ill.	Sodium, chlorine. ....	.....	New plant due on stream in 1958.
Food Machinery & Chemical Corp.	South Charleston, W. Va.	Chlorine-caustic. ....	.....	Expansion will boost capacity by 90 tons/day to 460 ton/day total.
Freeport Sulphur Co.	Gulf of Mexico.	Sulfur. ....	.....	Operations, to start in 1958, will produce sulfur by Frasch process.

New Plants & Facilities

1957 INVENTORY

• Inorganics - Continued

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Gas-Ice Corp.	Finley, Wash.	Liquid carbon dioxide		New plant, now on stream, supplies AEC's nearby Hanford Works.
Glidden Co.	Baltimore, Md.	Titanium dioxide	20 million	Expansion will quadruple capacity by 1958.
Gulf Oil Co.	Port Arthur, Tex.	Sulfur		Expansion boosts sulfur output by 60 tons/day.
Hancock Chemical Co.	Wilmington, Calif.	Sulfur	1.5 million	Expansion, due for completion Oct. 1957, boosts capacity to 150 tons/day.
Hercules Powder Co.	Hopewell, Va.	Chlorine-caustic		Plant expansion will boost capacity by 23 ton/day in 1958.
H. K. Porter Co.	Pascagoula, Miss.	Magnesia, basic refractories	8 million	New plant planned.
Hooker Electrochemical (Oldbury Div.)	Columbus, Miss.	Sodium Chlorate		Expansion will bring total investment to 6 million, will boost capacity to 22,000 tons/yr.
Intermountain Chemical (Food Machinery & Chemical Corp.)	Westvaco, Wyo.	Soda ash	1 million	Firm will boost annual production to 400,000 tons this year, 500,000 tons next year.
Jefferson Chemical Corp.	Port Neches, Tex.	Chlorine-caustic		New plant, due on stream in 1958, will have 150-ton/day capacity.
Kaiser Aluminum & Chemical Corp.	Gramercy, La.	Chlorine-caustic	8 million	New plant completed mid-1957. Boosts capacity at site by 36,000 tons/yr. of chlorine, 40,000 tons/yr. of caustic soda.
Kaiser Aluminum & Chemical Corp.	Moss Landing, Calif.	Magnesium and calcium oxides and hydroxides	3 million	Plant expansion completed early 1957.
Linde Co.	Ashland, Ky.	High-purity oxygen		New plant completed mid-1957.
Linde Co.	Aurora, Minn.	High-purity oxygen		New plant completed late in 1957.
Linde Co.	Belle, W. Va.	Industrial oxygen		New plant scheduled for completion in 1958. Oxygen sale to one customer.
Linde Co.	Buffalo, N. Y.	High-purity oxygen		New plant ready in mid-1957.
Linde Co.	Canton, Ohio	High-purity oxygen		Plant completed mid-1957.
Linde Co.	Chicago, Ill.	High-purity oxygen		New plant slated to be on stream early 1958.
Linde Co.	Cleveland, Ohio	High-purity oxygen		New plant ready in late 1957.
Linde Co.	Fontana, Calif.	Oxygen		New unit will boost gaseous oxygen output to 180 tons/day, eventually to 430 tons/day. On stream early next year.
Linde Co.	Philadelphia, Pa.	High-purity oxygen		New plant ready in late 1957.
Linde Co.	Pittsburgh, Pa.	High-purity oxygen		New plant ready in mid-1957.
Liquid Carbonic Corp.	Oakland, Calif.	Liquid oxygen	1.5 million	New plant slated for operation late 1957.
Liquid Carbonic Corp.	San Carlos, Calif.	Electrolytic hydrogen	500,000	New plant completed late 1956.
Metal Hydrides, Inc.	Beverly, Mass.	Sodium borohydride		New plant, now under construction, will produce sodium borohydride for high-energy fuels.
Metal Hydrides, Inc.	Danvers, Mass.	Hydrogen		New hydrogen plant in engineering phases.
Michigan Chemical Corp.	Catesville, Ark.	Bromine, ethylene dibromide	1.2 million	New plant completed Dec. 1956.
National Cylinder Gas Co.	Chicago, Ill.	Electrolytic hydrogen		Expansion, completed Oct. 1956, boosts capacity by 70%.
National Cylinder Gas Co.	Chicago, Ill.	Liquid oxygen	3 million	Expansion ups capacity by 150%.
National Cylinder Gas Co.	Huntsville, Ala.	Hydrogen		New hydrogen plant now on stream.
National Cylinder Gas Co.	Jackson, Miss.	Tonnage oxygen, acetylene, nitrogen		New plant now on stream.
National Cylinder Gas Co.	Kenosha, Wis.	Hydrogen		Expansion boosts capacity by 30%.
National Cylinder Gas Co.	Los Angeles, Calif.	Hydrogen		Expansion boosts capacity by 70%.
National Cylinder Gas Co.	San Leandro, Calif.	Oxygen, nitrogen		Plant under construction.
National Cylinder Gas Co.	St. Paul, Minn.	Hydrogen		New plant under construction.
National Lead Co.	Niagara Falls, N. Y.	Zirconium oxide, zirconium silicate		Expansion now under way.
Norton Co.	Huntsville, Ala.	Magnesia, sironia, boron carbide	1.3 million	New plant completed Dec. 1956.
Olin Mathieson Chemical Corp.	McIntosh, Ala.	Chlorine-caustic	8 million	Expansion doubles capacity to 250 tons/day of chlorine, 280 tons/day of caustic soda.
Olin Mathieson Chemical Corp.	Pasadena, Tex.	Sodium silicofluoride	750,000	New unit is now in full operation.
Osark-Mahoning Corp.	Tulsa, Okla.	Sodium sulfate	1 million	New plant completed early 1957.
U. S. Borax & Chemical Corp.	Boron, Calif.	Borax	18 million	New plant completed this year.
Pennsalt Chemicals	Calvert City, Ky.	Chlorine-caustic		Expansion of facilities to be completed in 1958, will boost capacity by 100 tons/day.
Platte Chemical Co.	Casper, Wyo.	Sulfuric acid	2.5 million	Land acquired for 225-ton/day plant; acid will be used for uranium processing.
Procter & Gamble Corp.	Kansas City, Kan.	Hydrogen		New hydrogen plant in engineering phase.
Reichhold Chemicals, Inc.	Tuscaloosa, Ala.	Sulfuric acid	1 million	New 100-ton/day plant planned.
Rohm & Haas Co.	Deer Park, Tex.	Ammonium sulfate		New plant now under construction, to be completed early 1958.
San Antonio Chemicals Co. (subsidiary of Amer. Potash & Chemical Co.)	San Antonio, Tex.	Mixed alkali carbonates—70% potassium, 23% rubidium, 2% cesium	750,000	Now in operation, plant uses alkali-rich end liquors of American Lithium Chemicals' nearby lithium hydroxide plant.
Shell Chemical Corp.	Noreo, La.	Hydrogen peroxide		New plant due on stream late 1957.
Sherwin-Williams Co.	Coffeyville, Kan.	Barium monohydrate	Over 1 million	New unit, slated to be on stream early 1958, will use new process.
Southern Nitrogen Co.	Savannah, Ga.	Nitrogen	14 million	New plant now on stream.
Stauffer Chemical Co.	Domingues, Calif.	Sulfuric acid	2 million	New plant on stream late 1957.
Stauffer Chemical Co.	Hammond, Ind.	Sulfuric acid	4 million	New plant planned to process sludge acid, will have capacity of 400 tons/day.

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Stauffer Chemical Co. (Consolidated Chemical Industries Div.)	Le Moyne, Ala.	Sulfuric acid	2 million	New contact plant went on stream March 1957. Capacity: 500 tons/day.
Stauffer Chemical Co.	San Francisco, Calif.	Boric acid	500,000	Plant expansion boosts capacity by 50%. Will be completed late 1957.
Texas Gulf Sulphur Co.	Jefferson County, Tex.	Sulfur		Plant under construction, will use Frasch process.
U. S. Steel	Clairton, Pa.	Hydrogen		Plant planned, hydrogen will be used to make benzene, toluene, xylenes.
Westvaco Chlor-Alkali	South Charleston, W. Va.	Carbon disulfide, carbon tetrachloride	Multimillion	Expansion planned.
Westvaco Chlor-Alkali	Green River, Wyo.	Soda ash		Expansion completed 1957.
Westvaco Chlor-Alkali	Modesto, Calif.	Barium oxide		Expansion completed early 1957.
Weyerhaeuser Timber Corp.	Longview, Wash.	Chlorine-caustic		New plant completed Dec. 1956.
Wyandotte Chemicals	Baton Rouge, La.	Chlorine-caustic	20 million	New plant, due on stream in 1958, will have 300-ton/day capacity.

• Metals

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Allegheny Ludlum Steel	Pittsburgh, Pa.	Titanium	1.6 million	New Plant under construction.
Allied-Kennecott Titanium Corp.	Wilmington, N. C.	Titanium metal	Involves 40 million investment	Plant under construction. Operation scheduled Dec. 1958.
American Smelting and Refining Co.	Alton, Mo.	Secondary aluminum		Construction on 72-million-lb./yr. plant will begin next year.
Atomic Fuel Extraction Corp.	Bedrock, Colo.	Uranium concentrates	2 million	New plant completed in early 1957.
Beryllium Corp.	Hasleton, Pa.	Beryllium metal, nuclear grade	4 million	New plant under construction.
Carborundum Metals Co.	Parkersburg, W. Va.	Zirconium		New plant, 500,000-lb./yr. capacity, to use Kroll magnesium reduction process.
Carborundum Co.	Vancouver, Wash.	Silicon carbide	1 million	Expansion will boost production by 35-40%.
Climax Uranium Co.	Grand Junction, Colo.	Uranium	3.1 million	New mill operating Dec. 1956.
Columbia-National Corp.	Ashtabula, Ohio	Zirconium and hafnium metals	8 million	Full-scale commercial production scheduled for late 1957. Zirconium capacity: 2 million lb./yr.
Columbia-National Corp.	Pensacola, Fla.	Zirconium, zirconium oxide, rare metals	5 million	New plant now operating.
Continental Uranium, Inc. and Minerals Engineering Co.	La Sal, Utah	Uranium concentrates	1.25 million	Plant under construction, will use Burwell acid-leach process.
Columbia-National Corp.	Pensacola, Fla.	Zirconium sponge, hafnium		New plant, soon in production, 3.5 million lb. for AEC.
Cotter Corp.	Canon City	Uranium		Firm has signed contract with AEC for construction of a 50-100-ton/day uranium processing pilot plant.
Du Pont	Brevard, N. C.	High-purity silicon		New plant; on stream 1958, 70,000 lb./yr.
Eagle-Picher	Miami, Okla.	High-purity silicon		Facilities in operation.
Electromet	Alloy, W. Va.	Ferromanganese, ferrochrome		Facilities completed Aug. 1957.
Fansteel Metallurgical Corp.	Muskogee, Okla.	Tantalum, columbium	6.5 million	New plant on stream Sept. 1957.
Foote Mineral Co. (Electromanganese Div.)	Knoxville, Tenn.	Manganese	2 million	Expansion will boost capacity by 50%. To be completed early next fall.
Globe Mining Co. and Union Carbide Nuclear Corp.	Gas Hills, Wyo.	Uranium concentrates		New 1,000-ton/day processing mill planned.
W. R. Grace & Co.	Irwin, Tenn.	Uranium, thorium, rare-earth alloys and metals		Installation will include solvent extraction and reduction units, a metal and casting plant.
Harvey Aluminum (division of Harvey Machine Co.)	The Dalles, Ore.	Aluminum	65 million	New plant, to be on stream late 1957 or early 1958, has capacity of 54,000 tons/yr.
Heavy Minerals Co.	Chattanooga, Tenn.	Thorium, rare earths, heavy minerals	3 million	New plant completed late 1956.
Homestake Mining Co.	Grants, N. M.	Uranium concentrates		New plant planned. Capacity 170 tons/day of ore.
Hooker Electrochemical Co.	Niagara Falls, N. Y.	Boron-10	4 million	Plant has been operating since June 1954, turns out 3 lbs./day of elemental B-10.
Homestake-Sapin	Ambrosia Lake, N. M.	Uranium	9 million	New mill will be under construction soon.
Kaiser Aluminum & Chemical Corp.	Chalmette, La.	Aluminum	14.5 million	Expansion boosts capacity by 27,500 tons/yr., due for completion by mid-1957.
Kaiser Aluminum & Chemical Corp.	Gramercy, La.	Alumina	52 million	New 430,000-ton/yr. plant to be completed early 1958.
Kaiser Aluminum & Chemical Corp.	Ravenswood, W. Va.	Primary aluminum		New plant scheduled for early 1958.
Kaiser Aluminum & Chemical Corp.	Ravenswood, W. Va.	Aluminum sheet	200 million	New cold-rolling facilities now in production.
Kermae Nuclear Fuel Corp.	Bluewater, N. M.	Uranium		Work on new mill now under way. Mill is largest planned: 3,300 tons/day.
Kerr-McGee Oil Industries	Shiprock, N. M.	Uranium	3.1 million	New uranium mill completed Dec. 1957.

FOR MORE INFORMATION ABOUT THIS SECTION, SEE P. 145

New Plants & Facilities

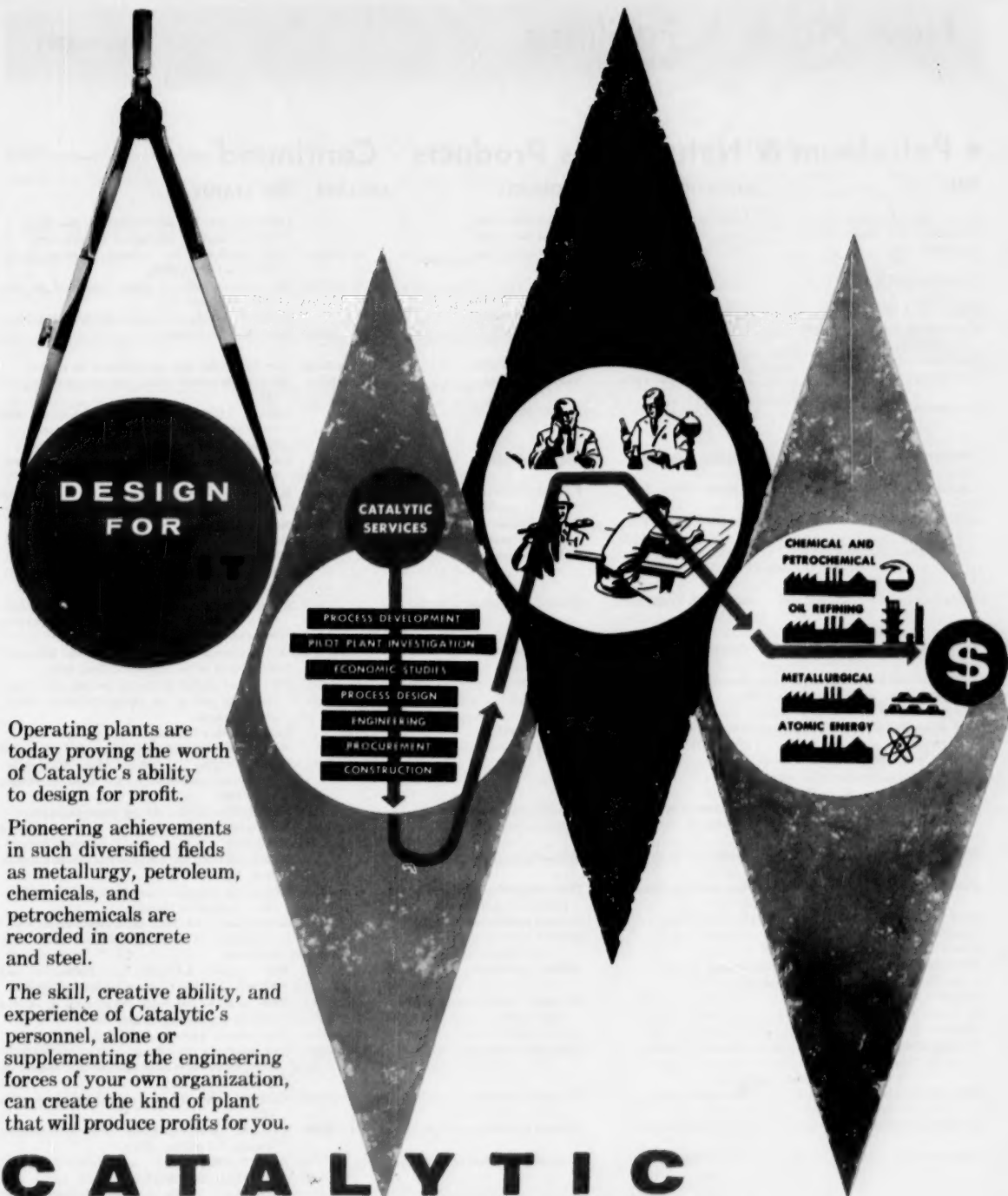
1957 INVENTORY

• Metals - Continued

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Lucky Mc Uranium Co.....	Gas Hills area, Wyo....	Uranium.....	7 million	Mill under construction, will process 750-1,000 tons/day of ore. Will extract via columnar ion exchange.
Mallinckrodt Chemical Works.....	Hematite, Mo.....	Enriched uranium dioxide...	750,000	Now in production. Capacity ranges from hundreds of pounds per day of 1-3% enriched product to a few pounds per day of 90% enriched product.
Metal & Thermit Corp.....	Montpelier, W. Va.....	Rutile, ilmenite.....		New rutile and ilmenite recovery plant to be completed late 1957.
Minerals Reduction Engineering Co.	Salt Lake City, Utah...	Uranium concentrates.....	3 million	New plant under construction.
Mines Development Co.....	Edgemont, S. D.....	Uranium concentrates.....	1.9 million	New plant under construction.
Olin Revere Metals Corp.....	Burnside, La. & Clarington, Ohio	Aluminum, alumina.....	231 million	New plants under construction. Clarington plant to be completed fall 1957, Burnside project, spring 1958. Capacity at Burnside: alumina—350 million tons/yr., aluminum—180 million tons/yr.
Reactive Metals, Inc.....	Ashtabula, Ohio.....	Zirconium and hafnium products		New melting and fabricating plant scheduled on stream Sept. 1957.
Reynolds Metals Co.....	Corpus Christi, Tex....	Aluminum, alumina.....	42 million	Plant expansion. Two units, one on stream in 1957, other in 1958, will up capacity by 1,000 tons/day.
Reynolds Metals Co.....	Listerhill, Ala.....	Aluminum.....	81 million	Plant expansion completed in 1957.
Reynolds Metals Co.....	Troutdale, Ore.....	Aluminum.....	800,000	Expansion boosts capacity to 178 million lb./yr.
Reynolds Metals Co.....	Massena, N. Y.....	Primary aluminum.....	150 million	New plant planned.
Sabre-Pinon Corp. and American Metal Co., Ltd.	Ambrosia Lake, N. M....	Uranium concentrates.....		New plant planned.
Shattuck Denn Mining Co.....	Fremont County, Wyo....	Uranium concentrates.....		New plant planned.
Shea Chemical Co.....	Columbia, Tenn.....	Phosphorus.....	2.4 million	New facilities, now operating, boost capacity to 45,000 tons/yr.
Stauffer Chemical Co.....	Ashtabula, Ohio.....	Titanium tetrachloride.....		New plant will be on stream late this year, will supply TiCl ₄ to National Distillers' 10-million-lb./yr. titanium sponge plant to be completed nearby at the same time.
Stauffer Chemical Co.....	Niagara Falls, N. Y.....	Titanium tetrachloride.....		Expansion, completed early 1957, doubles capacity.
Stauffer Chemical Co.....	Niagara Falls, N. Y.....	Zirconium and silicon tetrachlorides		Expansion: zirconium tetrachloride, by 40%, silicon tetrachloride, by 20%.
Texas Instruments.....	Houston and Dallas, Tex.	High-purity silicon.....		Facilities in operation.
Texas Zinc Minerals Corp.....	Mexican Hat, Utah.....	Uranium concentrates.....		New plant completed Sept. 1957.
Trace Elements Corp.....	Maybell, Colo.....	Uranium concentrates.....	1 million	New Plant under construction.
Union Carbide Nuclear Corp.....	Rifle, Colo.....	Uranium concentrates.....	10.1 million	New plant completed fall 1957.
Union Carbide Nuclear Corp.....	Uravan, Colo.....	Uranium concentrates.....	5 million	Plant expansion completed fall 1956.
U. S. Industrial Chemicals Co.....	Ashtabula, Ohio.....	Titanium sponge.....		New plant will be on stream late this year. Capacity: 10-million lb./yr.
U. S. Industrial Chemicals Co.....	Ashtabula, Ohio.....	Zirconium platelets.....		New plant, 2 million lb./yr., upped from 1.5 million lbs./yr.
Vanadium Corp. of America.....	Durango, Colo.....	Uranium.....	800,000	New mill completed Dec. 1956.
Vanadium Corp. of America.....	New Alexandria, Ohio...	Ferroalloys.....	10 million	New plant to be completed late 1957.
Vitro Uranium Co.....	Salt Lake City, Utah...	Uranium concentrates.....	2.5 million	Plant expansion under way.
Wah Chang Corp.....	Albany, Ore.....	Zirconium.....		New plant has capacity of about 1 million lb./yr.
Western Nuclear Corp.....	Jeffrey City, Wyo.....	Uranium processing.....		New plant, 450-ton/day capacity, on stream July 1957.

• Petroleum & Natural Gas Products

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
American Oil Co.....	El Dorado, Ark.....	Refined petroleum.....		Adding 6,200-bbl./day Ultraformer, on stream Nov. 1957.
American Oil Co.....	Texas City, Tex.....	Refined petroleum.....		New 21,000-bbl./day Ultraformer and desulfurization unit planned.
American Oil Co.....	Yorktown, Va.....	Refined petroleum.....		New 35,000-bbl./day refinery on stream.
Ashland Oil & Refining Co.....	Buffalo, N. Y.....	Aromatic chemicals.....		Plant expansion to increase capacity by 21 million gal./yr.
Ashland Refining Co.....	Canton, Ohio.....	Refined petroleum.....	3.6 million	Adding 6,000-bbl./day cat reformer 15,000-bbl./day vacuum tower and hydrogen treater. New units under construction.
Atlantic Refining Co.....	Port Arthur, Tex.....	Refined petroleum.....		New 15,000-bbl./day Catformer on stream August 1957.
Atlas Processing Co.....	Shreveport, La.....	Refined gas liquids.....		1,300-bbl./day hexane hydroisomerization unit under construction; complete early 1958.
Aurora Gasoline Co.....	Detroit, Mich.....	Refined petroleum.....		Fluid coker under construction. Capacity: 4,000 bbl./day.
Cal-Mex Oil & Refining Co.....	San Diego, Calif.....	Refined petroleum.....	27 million	Refinery will be constructed by Ralph M. Parsons Co. Tentative on-stream date: early 1959.



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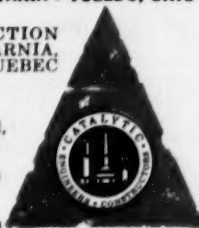
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• Petroleum & Natural Gas Products - Continued

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Ben Franklin Refining Co.	Ardmore, Okla.	Refined petroleum		1,000-bbl./day HF alkylation unit planned.
Champlin Oil & Refining Co.	Enid, Okla.	Refined petroleum		1,430-bbl./day HF alkylation unit planned.
Chenail Corp.	New Orleans, La.	Refined petroleum	20 million	New 20,000-bbl./day refinery planned, to be completed Dec. 1958.
Cities Service Oil Co.	Linden, N. J.	Asphalt	9 million	New asphalt refinery under construction, due on stream 1958.
Clarke Oil & Refining Co.	Chicago, Ill.	Refined petroleum		Refining capacity to be expanded 9,000 bbl./day.
Commercial Solvents and Columbia Gas System	Irontown, Ohio	Petrochemicals	50 million	New plant is planned.
Continental Oil Co.	Denver, Colo.	Refined petroleum	1.4 million	New 3,300-bbl./day cat reformer on stream.
Continental Oil Co.	Oklahoma City, Okla.	Natural gasoline	1.75 million	Plant under construction, will process 60 million cfd.
Continental Oil Co.	Ponca City, Okla.	Refined petroleum		Adding 11,000-bbl./day cat reformer and 16,000-bbl./day hydro-desulfurization unit. Construction completed July 1957.
Continental Oil Co.	Wichita Falls, Tex.	Refined petroleum		3,500-bbl./day cat reformer under construction. Complete early 1958.
Corpus Christi Refining Co.	Corpus Christi, Tex.	Refined petroleum	1.2 million	Modernization and expansion boosts capacity by 3,000 bbl./day.
Delhi-Taylor Oil Co.	Corpus Christi, Tex.	Petrochemicals (benzene, toluene, xylene)	4 million	New 45-million-gal./yr.
Delhi-Taylor Oil Co.	Corpus Christi, Tex.	Refined petroleum		Adding 14,000-bbl./day Unifiner and Platformer, adding 4,500-bbl./day Udex unit. On stream early 1957.
Delta Refining Co.	Memphis, Tenn.	Refined petroleum		Boosting crude capacity by 20,000 bbl./day, TCC capacity by 9,500 bbl./day, adding 860-bbl./day polymerization unit.
Douglas Oil Co. of Calif.	Bakersfield, Calif.	Refined petroleum		Will up crude capacity by 12,000 bbl./day. Expansion to be completed Dec. 1957.
Dow Chemical Co.	Bay City, Mich.	Petrochemicals, chiefly ethylene		New plant slated to be on stream next year. Ethylene will go to Dow's Midland, Mich., plastics plant.
D-X Sunray	Duncan, Okla.	Refined petroleum		6,000-bbl./day Unifiner.
D-X Sunray	Tulsa, Okla.	Refined petroleum		Adding 20,000-bbl./day Unifiner, HF alkylation unit, adding 12,000-bbl./day Platformer, butane-isomerization unit. Due on stream early 1958.
Eastern States Petroleum Co.	Houston, Tex.	Refined petroleum		New 13,000-bbl./day coking plant planned.
El Paso Natural Gas Products	Gallup, N. M.	Refined petroleum	10 million	New 9,000-bbl./day refinery to be completed fall 1957.
El Paso Natural Gas Products	Odessa, Tex.	Refined petroleum		New 6,500-bbl./day refinery due for completion Nov. 1957.
Esso Standard Oil Co.	Baton Rouge, La.	Petrochemicals, ethylene, butadiene, wax, lube oils	40 million	Expanding ethylene and butadiene facilities. Other expansion planned.
Esso Standard Oil Co.	Everett, Mass.	Refined petroleum		Adding new 7,200-bbl./day Powerformer.
Esso Standard Oil Co.	Linden, N. J.	Refined petroleum		New 20,000-bbl./day Powerformer under construction.
Farmers Union Central Exchange	Laurel, Mont.	Refined petroleum		Will complete 4,400-bbl./day Platformer and 12,000-bbl./day Unifiner by March 1958.
Frontier Oil & Refining	Tonawanda, N. Y.	Refined petroleum, petrochemicals	5 million	New catalytic reformer on stream, aromatics unit in engineering stage.
Frontier Refining	Fort Pierce, Fla.	Refined petroleum	16 million	New refinery under construction.
General Petroleum Corp.	Ferndale, Wash.	Refined petroleum	6.3 million	New 9,000-bbl./day Sovafomer under construction, stove-oil treater and jet-fuel treater on stream.
General Petroleum Corp.	Torrance, Calif.	Refined petroleum	6 million	12,000-bbl./day Sovafomer due on stream late 1957.
Great Northern Oil Co.	Pine Bend, Minn.	Refined petroleum	1 million	Catalytic desulfurization unit on stream, handles 5.2 million cfd.
Gulf Oil Co.	Philadelphia, Pa.	Refined petroleum		New 24,000-bbl./day cat reformer planned, 2,800-bbl./day alkylation unit under construction, 36,000-bbl./day Gulfining unit under construction.
Gulf Oil Co.	Near Charleston, S. C.	Refined petroleum		Refinery planned.
Gulf Oil Co.	Port Arthur, Tex.	Refined petroleum		Firm has added two Gulfiners and boosted alkylation capacity.
Gulf Oil Co.	Port Arthur, Tex.	Refined petroleum		New 26,000-bbl./day Platformer planned; considering added ethylene capacity, polymerization facilities under construction.
Gulf Oil Co.	Port Arthur, Tex.	Refined petroleum		10,000-bbl./day Pentane isomerization unit planned. Complete late 1958.
Humble Oil & Refining Co.	Baytown, Tex.	Refined petroleum		New 55,000-bbl./day fluid cat cracker planned.
Humble Oil & Refining Co.	Kingsville, Tex.	Natural gas liquids	75 million	Gas processing and cycling plant planned. Capacity 750 mmefcd. Construction to begin 1958.
Kentucky Hydrocarbon	Maytown, Ky.	Ethane		New 50-million-cfd. plant in design stage.

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Kerr-McGee Oil Industries.....	Wynnewood, Okla.....	Refined petroleum.....	4 million	Contract for new 5,500-bbl./day Platformer and 32,000-bbl./day Unifiner awarded to Refinery Engineering Co.
Lion Oil Co.....	El Dorado, Ark.....	Nitric Acid.....		New 40-ton/day nitric acid concentrator under construction.
Magnolia Petroleum Co.....	Beaumont, Tex.....	Refined petroleum.....		Added early 1957 27,800-bbl./day TCC unit and 20,000-bbl./day Sovaformer.
Magnolia Petroleum Co.....	Beaumont, Tex.....	Refined petroleum.....		100,000-bbl./day crude distillation unit and 32,000-bbl./day vacuum unit under construction.
McMurray Refining Co.....	Tyler, Tex.....	Refined petroleum.....		Adding 3,200-bbl./day Unifiner, boosting Platforming capacity by 5,200 bbl./day. Scheduled for completion June 1958.
Naph-Sol Refining Co.....	Muskegon, Mich.....	Refined petroleum.....		New 6,000-bbl./day cat reformer planned.
Northwestern Refining Co.....	St. Paul Park, Minn.....	Refined petroleum.....	2.5 million	Adding 6,000-bbl./day cat reformer.
Paragon Oil Co.....	Riverton, R. I.....	Fuel oil, gasoline, jet fuel.....	38 million	New plant on stream mid-1957. Capacity: 30,000 bbl./day.
Phillips Petroleum Co.....	Sweeny, Tex.....	Refined petroleum.....		Natural gas-liquid-fractionation, alkylation and gas-cracking facilities on stream early 1957.
Phillips Petroleum Co.....	Sweeny, Tex.....	Refined petroleum.....		Crude capacity boosted 10,000 bbl./day, early 1957; additional capacity boost, in 1958.
Phillips Petroleum Co.....	Woods Cross, Utah.....	Refined petroleum.....	Multimillion	Firm has let contract to Procon, Inc., for construction of catalytic reforming unit.
Pontiac Eastern Corp.....	Purvis, Miss.....	Refined petroleum.....	20 million	New fluid coker-fractionator, of 11,000-bbl./day capacity, on stream Oct. 1957.
Premier Oil Refining Co.....	Longview, Tex.....	Refined petroleum.....	1.5 million	Expansion. Platforming and Unifining unit completed.
Prime Oil Co.....	Calumet City, Ill.....	Refined petroleum.....	10 million	New 15,000-bbl./day refinery planned.
Pure Oil Co.....	Lemont, Ill.....	Refined petroleum.....		Two new 12,000-bbl./day cat reformers under construction, one on stream mid-1957, one due on stream late 1957.
Richfield Oil Corp.....	Everett, Wash.....	Refined petroleum.....	55 million	Will begin construction on 50,000-bbl./day refinery when Pacific-northwest sales reach 35,000 bbl./day. Tentative on-stream date: 1965.
Shell Oil Co.....	Anacortes, Wash.....	Petroleum alkylates.....		2,400-bbl./day sulfuric acid alkylation unit, will be on stream in mid-1958, Fluor Corp. is building.
Sinclair Refining Co.....	Corpus Christi, Tex.....	Refined petroleum.....		6,500-bbl./day cat reformer; complete Spring 1958.
Sinclair Refining Co.....	East Chicago, Ind.....	Refined petroleum.....	1.3 million	Hydrofinishing unit under construction.
Sinclair Refining Co.....	Houston, Tex.....	Refined petroleum.....	5.6 million	24,000-bbl./day hydrodesulfurization unit under construction.
Sinclair Refining Co.....	Wood River, Ill.....	Refined petroleum.....	7 million	New 6,500-bbl./day cat reformer under construction.
Skelly Oil Co.....	El Dorado, Kan.....	Refined petroleum.....		Firm is adding a 3,000-4,000-bbl./day Peroo HF alkylation unit.
Soco Mobil Oil Co.....	East St. Louis, Ill.....	Refined petroleum.....		Adding 16,000-bbl./day pretreater and 12,000-bbl./day Sovaformer. Slated on stream 1957.
Soco Mobil Oil Co.....	Augusta, Kan.....	Refined petroleum.....		New 9,000-bbl./day cat reformer scheduled on stream Aug. 1957.
Soco Mobil Oil Co.....	Trenton, Mich.....	Refined petroleum.....	3.5 million	New 3,500-bbl./day alkylation unit slated for early 1958.
Southland Co.....	Tampa, Fla.....	Refined petroleum.....	12 million	New 15,000-bbl./day refinery planned.
Standard Oil (Calif.).....	Everett, Wash.....	Refined petroleum.....	75 million	New 60,000-bbl./day refinery slated to go on stream Jan. 1959.
Standard (Ind.).....	Sugar Creek, Mo.....	Refined petroleum.....		New 3,800-bbl./day alkylation unit scheduled for mid-1957. Built by Foster Wheeler.
Standard (Ind.).....	Neodesha, Kans.....	Refined petroleum.....		New 6,000-bbl./day Ultraformer scheduled for early 1958.
Standard (Ind.).....	Whiting, Ind.....	Refined petroleum.....		Three 21,000-bbl./day Ultraformers scheduled, one on stream, two scheduled for 1958.
Standard (Ind.).....	Wood River, Ill.....	Refined petroleum.....		Multimillion-dollar expansion program, adding crude oil distillation and cat cracking facilities, complete: 1959.
Standard (Ohio).....	Cleveland, Ohio.....	Refined petroleum.....	3 million	New 3,000-bbl./day alkylation unit scheduled for early 1958.
Standard (Ohio).....	Toledo, Ohio.....	Refined petroleum.....	40 million	Construction under way. New facilities will raise refinery capacity by 30,000 bbl./day. Due on stream in April 1958.
Standard (Tex.).....	El Paso, Tex.....	Refined petroleum.....		25,000-bbl./day refinery expansion due completed Sept. 1957, 27,000-bbl./day fluid cat cracker under construction.
Suntide Refining Co.....	Corpus Christi, Tex.....	Refined petroleum.....		6,000-bbl./day Unifiner, 15,000-bbl./day Rex-former, 4,500-bbl./day Udex unit under construction. Complete late 1957.
Texas Co.....	Anacortes, Wash.....	Refined petroleum.....		New 40,000-bbl./day refinery scheduled for completion in Jan. 1959.

New Plants & Facilities

1957 INVENTORY

• Petroleum & Natural Gas Products - Continued

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Texas Co.	Lawrenceville, Ill.	Refined petroleum		Boosting capacity of vacuum pipe still by 8,500 bbl./day.
Texas Co.	Port Arthur, Tex.	Lube oil additives		Plant now operating.
Texas Co.	Port Arthur, Tex.	Refined petroleum		Adding 90,000-bbl./day cat cracker and 86,000-bbl./day crude unit. On-stream date: early 1958.
Texas Co.	Port Arthur, Tex.	Refined petroleum		80,000-bbl./day vacuum pipe still under construction, due on stream late 1957.
Texas City Refining Co.	Texas City, Tex.	Refined petroleum		7,000-bbl./day Houdriformer now under construction.
Tidewater Oil Co.	Associated, Calif.	Refined petroleum		Expansion will boost gasoline-producing capacity at 114,000-bbl./day refinery by 15%.
Tidewater Oil Co.	Avon, Calif.	Refined petroleum		2,500-bbl./day Houdriformer under construction.
Tidewater Oil Co.	Delaware City, Del.	Refined petroleum	Nearly 100 million	Refinery on stream in spring of 1957.
Union Oil Co. of Calif.	Wilmington, Calif.	Refined petroleum		Added 14,500-bbl./day Platformer and 15,750-bbl./day Unifiner.
United Fuel Gas Co. (subsidiary of Columbia Gas System)	Huntington, W. Va.	Petrochemicals	8 million	Construction under way on hydrocarbon extraction plant. Unit will extract petrochemicals from natural gas.
United Fuel Gas Co. (subsidiary of Columbia Gas System)	Siloam, Ky.	Petrochemicals	5 million	Construction now under way on fractionation plant.
U. S. Oil & Refining Co.	Long Beach, Calif.	Refined petroleum	10 million	New 25,000-bbl./day refinery on stream in summer 1957.
U. S. Oil & Refining Co.	Tacoma, Wash.	Refined petroleum		2,500-bbl./day Houdriformer on stream in summer 1957.
Utah Oil Refining Co.	Salt Lake City, Utah	Refined petroleum	2 million	New 35,000-bbl./day crude unit set for completion in mid-1958.
Vickers Petroleum Co.	Potwin, Kan.	Petrochemicals	2 million	New plant will be on stream in Jan. 1958.
Vickers Petroleum Co.	Potwin, Kan.	Refined petroleum	1 million	New 2,500-bbl./day Ultraformer on stream early 1957.
Wilshire Oil Co.	Norwalk, Calif.	Refined petroleum		10,000-bbl./day Unifiner-Platformer on stream Jan. 1957.

• Plastics & Resins

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Allied Chemical & Dye Corp. (National Aniline Div.)	Moundsville, W. Va.	Isocyanates	Multimillion	New plant, now on stream, produces 6-7 million lb./yr.
Allied Chemical & Dye Corp. (Barrett Div.)	Toledo, Ohio	Melamine and urea molding compounds		Expansion will double present output by mid-1959.
Allied Chemical & Dye Corp. (Barrett Div.)	Toledo, Ohio	Phenolic and polyester resins		New plant completed Oct. 1957.
Allied Chemical & Dye Corp. (Solvay Process Div.)	Moundsville, W. Va.	Vinyl chloride monomer		Expansion planned, to more than double present capacity.
American Cyanamid	Avondale, La.	Acrylonitrile	25 million	Expansion will boost capacity from 50 million lb./yr. to 100 million lb./yr., will be complete in mid-1958.
Archer-Daniels-Midland	Pensacola, Fla.	Alkyd resins		Expansion will boost output by about 50%.
Arkansas Chemical Co.	Malvern, Arkansas	Montan wax and resins		Lignite mine and processing plant now in operation.
Cary Chemicals, Inc.	Flemington, N. J.	Polyvinyl chloride	1.2 million	New Plant completed June 1957. Capacity: 12 million lb./yr.
Celanese Corp.	Houston, Tex.	Polyolefins, polyethylene		New 40-million-lb./yr. plant on stream early 1957.
Chemical Process Co.	Redwood City, Calif.	Polyester and isophthalic		Expansion has tripled capacity.
Cosden Petroleum Corp.	Big Spring, Tex.	Styrene	3 million	New 20-million-lb./yr. plant, now operating, produces styrene from gasoline via direct recovery of ethyl benzene.
Diamond Alkali	Deer Park, Tex.	Polyvinyl chloride		Plant expansion completed March 1957.
Dow Chemical Co.	Allyn's Point, Conn.	Polystyrene		Expansion completed early 1957.
Dow Chemical Co.	Fresport, Tex.	Acrylonitrile		New unit, to be completed in Dec. 1958, will go into production in early 1959.
Dow Chemical Co.	Fresport, Tex.	Polyethylenes		Construction to start soon on a second plant.
Dow Chemical Co.	Midland, Mich.	Polystyrene		Expansion completed early 1957.
Dow Chemical Co.	Pevely, Mo.	Polystyrene foam		New plant on stream early 1957.
Dow Corning Corp.	Greensboro, N. C.	Silicone products		New plant now under construction.
Du Pont	Deepwater Point, N. J.	Isocyanates	10 million	25-million-lb./yr. plant on stream in 1956.
Du Pont	Niagara Falls, N. Y.	Polyvinyl acetate	2.5 million	Expansion completed late 1956.
Du Pont	Parkersburg, W. Va.	Teflon resins		Plant expansion, to be completed by 1958, will boost production by 30%.
Du Pont	Tecumseh, Kan.	Cellophane		New plant, 50 million lb./yr., on stream 1959.
Dures Plastics	North Tonawanda, N. Y.	Polyester molding compounds	570,000	New plant will be in operation this fall.

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Escambia Chemical Corp.	Pensacola, Fla.	Polyvinyl chloride		New unit completed Jan. 1957. Capacity: 30 million lb./yr.
Ethyl Corp.	Baton Rouge, La.	Vinyl chloride monomer		Plant scheduled for completion late 1957.
Formica Corp.	Evendale, Ohio	Formica resin	1.5 million	Addition completed Sept. 1957.
General Electric Co.	Pittsfield, Mass.	Irrathene (irradiated Polyethylene)		Plant is now in production. Capacity: 1.6 million lb./yr.
B. F. Goodrich Chemical Co.	Avon Lake, Ohio	Geon polyvinyl resins, plastic compounds	8 million	Plant expansion, completed March 1957, doubles vinyl capacity.
B. F. Goodrich Chemical Co.	Calvert City, Ky.	Special acrylic polymers	2.5 million	New plant completed Oct. 1957.
W. R. Grace & Co.	Baton Rouge, La.	Polyethylene	18 million	New 50-million-lb./yr. plant under construction.
Goodyear Tire & Rubber Co. (Pathfinder Chemical)	Niagara Falls, N. Y.	Vinyl resins	4 million	Expansion now under way.
Hawthorne Chemical Co.	Louisiana, Mo.	Methyl methacrylate	11 million	New 35-million-lb./yr. plant in engineering phase.
Hercules Powder Co.	Parlin, N. J.	High-density polyethylene	10 million	New plant now on stream.
Hooker Electrochemical Co.	Kenton, Ohio	Plastic molding compounds	5 million	New plant completed late 1956.
Koppers Co.	Kobuta, Pa.	Polystyrene		New unit under construction.
Koppers Co.	Port Reading, N. J.	High-density polyethylene		New Ziegler-process plant completed early 1957. Capacity: 30 million lb./yr.
Marbon Corp. (division of Borg-Warner Corp.)	Washington, W. Va.	High-impact thermoplastic resins	10 million	New plant due on stream Dec. 1957.
Monsanto Chemical Co.	Texas City, Tex.	Styrene monomer, acetylene		Expansion boosting styrene monomer capacity by 40 million lb./yr., acetylene by 12 million lb./yr. To be completed in 1958. Expansion will boost acrylonitrile capacity to over 100 million lb./yr.
National Petro-Chemicals Corp.	Gulf coast site	Polyethylene		New 75-million-lb./yr. plant will produce intermediate-density resins, is due on stream late 1958.
Olin Mathieson Chemical Corp.	Olin, Ind.	Cellophane		New 33-million-lb./yr. plant now on stream.
Phillips Chemical Co.	Pasadena, Tex.	Rigid polyethylene	31.5 million	New 75-million-lb./yr. plant now in operation, scheduled to reach full capacity during last months of 1957.
Reichhold Chemicals, Inc.	Ballardsville, Mass.	Resins		Expansion now under way.
Reichhold Chemicals, Inc.	South San Francisco, Calif.	Plasticizers		New unit under construction.
Rohm & Haas Co.	Deer Park, Tex.	Acrylates		Expansion underway.
Shawinigan Resins Corp.	Springfield, Mass.	Polyvinyl alcohol	1 million	New plant on stream Jan. 1957.
Shawinigan Resins Corp.	Trenton, Mich.	Polyvinyl resins		New plant completed March 1957.
Spencer Chemical Co.	Orange, Tex.	Medium-density polyethylene		Present expansion program will double capacity to 90 million lb./yr.
Spencer Chemical Co.	Henderson, Ky.	Nylon molding powder		New plant went on stream Aug. 1957.
Steen Resin & Chemical Co.	Chicago Heights, Ill.	Alkyd and vinyl resins		Ground broken for new plant with 28-million-lb./yr. capacity.
Texas Eastman Co.	Longview, Tex.	Polyethylene		Expansion has boosted capacity to 55 million lb./yr.
Union Carbide Chemicals Co.	Institute, W. Va.	Acrylonitrile		Expansion slated to double output by second quarter, 1958.
Union Carbide Chemicals Co.	Institute, W. Va.	Polyethylene		Plant planned. Combined capacity of Seadrift, Tex., and Institute will be 55 million lb./yr.
Union Carbide Chemicals Co.	Seadrift, Tex.	Polyethylene		New plant now on stream.
Union Carbide Chemicals Co.	Texas City, Tex.	Vinyl acetate		New 50-million-lb./yr. facilities on stream early 1957.
U. S. Industrial Chemicals	Tuscola, Ill.	Polyethylene	10 million	Expansion completed mid-1957.
U. S. Rubber Co.	Baton Rouge, La.	Plastic molding powders	7 million	Plant expansion completed Sept. 1957.
Visking Corp.	Flemington, N. J.	Polyethylene	1 million	New plant completed late 1956.
Witco Chemical Co.	Chicago, Ill.	Polyesters for urethane foams	20 million	New plant now on stream.

• Pulp & Paper

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Allied Paper Corp.	Kalamazoo, Mich.	Pulp, silvichemicals	4 million or 7 million	Mill now under construction, will be on stream late in 1958. Capacity: 100 or 200 tons/day.
American Forest Products Corp.	Newark, Calif.	Paper	2.5 million	New 50-ton/day mill went into production July 1957.
Bowaters Southern Paper Corp.	Calhoun, Tenn.	Pulp and paper	21 million	Two newsprint machines, added in 1957, boost capacity to 435,000 tons/yr.
Bowaters Southern Paper Corp.	Catawba, S. C.	Sulfate pulp	38 million	400-ton/day plant planned.
Buckeye Cellulose Corp. (Proctor & Gamble subsidiary)	Foley, Fla.	Chemical cellulose pulp	20 million	Plant expansion to be completed by mid-1958.
Container Corp. of America	Dolton, Ill.	Corrugated containers		New plant in operation June 1957.
Crown-Zellerbach	Antioch, Calif.	Corrugated boxes	3 million	New plant under construction.
Crown-Zellerbach	Antioch, Calif.	Tissue, toweling, specialties	8 million	New converting plant. Initial units now in operation.

New Plants & Facilities

1957 INVENTORY

• Pulp & Paper - Continued

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Crown-Zellerbach.....	St. Francisville, La.....	Paper.....	31 million	New mill under construction.
Crown-Zellerbach.....	De Ritter, La.....	Pulp and Paper.....	.....	Plant site acquired.
Crown-Zellerbach.....	Camas, Wash.....	Kraft bleached pulp.....	2.7 million	New plant completed July 1957.
Embry Container Corp.....	Louisville, Ky.....	Paper.....	500,000	Expansion includes printing, sealing, corrugating machinery.
Fibreboard Paper Products Corp..	Sacramento Valley.....	Pulp and paperboard.....	.....	Plant planned; part of 30-million plant building program.
Georgia-Pacific Paper Co.....	Toledo, Ore.....	Kraft pulp, paper, container board.....	21 million	New 250-ton/day plant under construction. On-stream date: March 1958.
Gulf States Paper Corp.....	Demopolis, Ala.....	Pulp and paper.....	25 million	New 300-ton/day mill now on stream.
Hamilton Paper Co.....	Miquon, Pa.....	Pulp and paper.....	4.5 million	New machine boosts capacity by 120,000 lb./day, to 650,000 lb./day.
Hudson Pulp & Paper Co.....	Palatka, Fla.....	Tissue.....	Multimillion	New 80-ton/day mill on stream early 1957.
International Paper Co.....	Pine Bluff, Ark.....	Newsprint and bleached board.....	57 million	New plant on stream late 1957. Capacity: 130,000 tons/yr. of newsprint, 165,000 tons/yr. of bleached kraft board.
J. & J. Rogers Co.....	Silt, Colo.....	Newsprint.....	10 million	New mill under construction.
Kimberly-Clark Corp.....	New Milford, Conn.....	Paper.....	.....	New creped-wadding and converting mill under construction, due on stream early 1958.
Marathon Southern Corp.....	Naheola, Ala.....	Pulp and paper.....	55 million	New mills will be on stream May 1958.
Murphy Corp.....	El Dorado or Pine Bluff, Ark.....	Pulp and paper.....	.....	Mill planned.
Norslyn Paper Mills.....	(Not announced).....	Pulp and paper.....	.....	New company organized July 1957, with 1.4 million authorized capital. Firm will use assembly line continuous paper production process.
Simpson Timber Co. and Fibreboard Paper Products	Eureka, Calif.....	Pulp and paper.....	.....	Engineering has been completed for new mill.
Simpson Timber Co.....	Everett, Wash.....	Paper.....	.....	Capacity boosted to 140 tons/day.
Sonoco Products Co.....	Hartsville, S. C.....	Pulp and paper.....	.....	Expansion program includes pulp mill, chemical recovery plant and 350-ton/day Fourdrinier machine. Completion date: 1958.
Southland Paper Mills.....	Herty, Tex.....	Pulp and paper, newsprint.....	.....	Adding newsprint machine to boost output by 90,000 tons/yr. Part of multimillion-dollar expansion program.
Southern Pine Lumber Co.....	Diboll, Tex.....	Fiberboard.....	.....	New plant scheduled to go on stream Jan. 1958.
Southwest Lumber Mills.....	Snowflake, Ariz.....	Pulp and Paper.....	30-40 million	New mill planned.
St. Regis Paper Co.....	Harrieville, N. Y.....	Paper.....	.....	Plant expansion under way.
St. Regis Paper Co.....	Jacksonville, Fla.....	Pulp and Paper.....	35 million	Expansion completed Sept. 1957.
St. Regis Paper Co.....	Libby, Mont.....	Pulp and Paper.....	.....	400-ton/day mill planned.
St. Regis Paper Co.....	Sartell, Minn.....	Paper.....	4 million	Expansion and modernization under way, will add 50 tons/day capacity to present 125-ton/day output.
Union Bag-Camp.....	Franklin, Va.....	Pulp and paper.....	.....	Expansion under way, due for completion late 1958.
U. S. Gypsum Co.....	Galena Park, Tex.....	Paperboard.....	.....	New paperboard mill, on stream early 1957, has 150-ton/day capacity.
Waldorf Paper Products Co.....	Missoula, Mont.....	Nodular kraft pulp.....	.....	New 250-ton/day mill under construction.
Western Kraft Corp.....	Albany, Ore.....	Pulp and paper.....	3 million	Expansion doubles capacity to 240 tons/day, complete late 1957.
West Virginia Pulp & Paper Co.,	Charleston, S. C.....	Pulp and paper.....	25 million	Expansion completed mid-1957, new machine boosts output to 1,200 tons/day of kraft paper.
West Virginia Pulp & Paper Co.,	Luke, Md.....	Pulp, paper.....	50 million	Expansion will boost capacity to 800 tons/day.
Weyerhaeuser Timber Co.....	Columbus, Miss.....	Pulp and paper.....	30 million	New mill planned.
Weyerhaeuser Timber Co.....	Cosmopolis, Wash.....	Bleached sulfite pulp.....	20 million	New 400-ton/day plant on stream early 1957.

• Rubber

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
American Synthetic Rubber Co..	Louisville, Ky.....	Synthetic rubber.....	3 million	Expansion adds 50% to plant capacity.
Copolymer Rubber & Chemical Corp.	Baton Rouge, La.....	Butadiene, GR-S rubber.....	.....	Expansion, completed July 1957, boosts capacity 30%.
Dow Chemical Co.....	Pittsburg, Calif.....	Synthetic latex.....	1 million	Plant completed Nov. 1956.
Du Pont.....	Beaumont, Tex.....	Hypalon (chlorosulfonated polyethylene).....	.....	Now on stream; capacity: 15 million lb./yr.
Du Pont.....	Montague, Mich.....	Neoprene.....	.....	New plant on stream in Oct. 1956, has 50-million-lb./yr. capacity.
Firestone Tire & Rubber Co.....	Akron, Ohio; Lake Charles, La.; Orange, Tex.....	Synthetic rubber, styrene, butadiene.....	50 million	New plant under construction at each location. Expected completion date: 1958.
Firestone Tire & Rubber Co.....	Orange, Tex.....	Butadiene.....	.....	New 40,000-ton/yr. unit is now completed.
General Tire & Rubber Co.....	Odessa, Tex.....	Synthetic rubber.....	28 million	New plant now in operation. Joint project with El Paso Natural Gas Co., which will produce raw materials.

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Goodyear Synthetic Rubber Co.	Akron, Ohio	Copolymer	2.5 million	Expansion of copolymer plant completed June 1957, boosts capacity to 27,000 tons/yr.
Goodyear Synthetic Rubber Co.	Houston, Tex.	GR-S rubber	9 million	New facilities, now on stream, boost capacity of plant by 50% to 220,000 tons/yr.
Humble Oil & Refining Co.	Baytown, Tex.	Butadiene		Expansion boosted capacity by 10,000 tons/yr., early 1957.
Naugatuck Chemical (division of U. S. Rubber)	Baton Rouge, La.	Paraeril synthetic rubber		Firm has upped capacity by 60%.
Neches Butane Products Co.	Port Neches, Tex.	Butadiene		Expansion will boost capacity to 300,000 tons/yr.
Odessa Butadiene Co.	Odessa, Tex.	Butadiene	20 million	Went on stream mid-July. First integrated butadiene-from-butane operation since World War II; uses cuprous ammonium acetate extraction process licensed by Esso Research & Engineering. Designed and built by Fluor Corp. Capacity: 50,000 tons/yr.
Odessa Styrene Co.	Odessa, Tex.	Styrene		New plant to be completed mid-1958.
Petroleum Chemicals	Lake Charles, La.	Butyl Rubber	17 million	New 30,000-ton/yr. plant under construction.
Petro-Tex Chemical Corp.	Houston, Tex.	Butadiene		New facilities now on stream, will boost output from 90,000 to 300,000 tons/yr.
Phillips Chemical Co.	Phillips, Tex.	Butadiene, copolymer		Plant expansion has boosted capacity to 104 tons/day of butadiene, 138 tons/day of copolymer.
Shell Chemical Corp.	Torrance, Calif.	Butadiene, copolymer		Expansion complete on butadiene facilities; copolymer plant undergoing modernization.
Texas Butadiene & Chemical Corp.	Houston, Tex.	Butadiene, aviation alkylate, butylenes	20 million	Houdry butane dehydrogenation unit on stream; 64,000 tons/yr. of butadiene. New facilities give 2.5 million bbl./yr. aviation-grade alkylate.
Texas-U. S. Chemical Co.	Port Neches, Tex.	Synthetic rubber	25 million	Expansion, to be completed by mid-1958, will boost capacity by 50%.
U. S. Rubber Co.	Naugatuck, Conn.	Synthetic rubber		40% plant expansion to be completed 1957.
U. S. Rubber Co.	Scottsville, Va.	Nylon tire-fabric	1 million	Firm is expanding production facilities.

• Synthetic Fibers

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
American Cyanamid	Pensacola, Fla.	Creslan acrylic fiber	25 million	New plant now under construction, will turn out 27 million lb./yr. of staple and tow.
American Enka Corp.	Enka, N. C.	Nylon		Expansion will boost capacity by 75% in 1958.
American Enka Corp.	Lowland, Tenn.	Rayon staple		New 50-million-lb./yr. plant is now in production.
Chemstrand Corp.	Decatur, Ill.	Acrylic fiber		Expansion will boost output by 50%, from 30 million to 45 million lb./yr.
Chemstrand Corp.	Pensacola, Fla.	Nylon		Expansion boosts production capacity by 56 million lb./yr.
Dow Chemical Co.	Lee Hall, Va.	Zefran ("nitrile alloy")		Plant under construction. Cost: 15 million. Estimated capacity: 14 million lb./yr.
Du Pont	Kinston, N. C.	Dacron		Plant expansion, due completed in 1957, will add about 10 million lb./yr. capacity.
Du Pont	Richmond, Va.	Nylon		New plant, due on stream in 1958, will have 40-million-lb./yr. capacity.
Du Pont	Waynesboro, Va.	Orlon		New 40-million-lb./yr. plant under construction.
Tennessee Eastman	Kingsport, Tenn.	Verel (acrylic)		New 12-15-million-lb./yr. plant due on stream this year.

• Miscellaneous

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Allied Chemical & Dye Corp. (General Chemical Div.)	Metropolis, Ill.	Uranium hexafluoride	50-million program	New plant, 5,000-lb./yr. of U ₃ O ₈ equivalent. Operation scheduled 1958, deliveries begin April 1, 1959.
American Cyanamid	Fort Worth, Tex.	Desulfurizing catalyst		Expansion completed.
American Gilsonite Co.	Fruita, Colo.	Metallurgical coke, gasoline	15 million	New plant, first of its type, now on stream. Capacity: 600-700 tons/day of Gilsonite.
Amoco Chemicals Corp.	Seymour, Ind.	B-57 jet starter cartridges		Under construction.
California Portland Cement Co.	Mojave, Calif.	Cement		Three kilns added, nearly doubling capacity to 70,000 sacks/day.
Callery Chemical Co.	Lawrence, Kan.	Boron specialty chemicals	3-4 million	New plant is being built by Blaw-Knox.
Callery Chemical Co.	Muskogee, Okla.	Boron-based fuels	38 million	New plant.
Crescent Carbon Corp.	Lancaster, Calif.	Carbon, synthetic graphite		New plant on stream in 1957.
Davison Chemical Co.	Baltimore, Md.	Platinum-on-alumina catalyst	1.5 million	Plant is now in production.

New Plants & Facilities

1957 INVENTORY

• Miscellaneous - Continued

FIRM	LOCATION	PRODUCTS	DOLLARS	JOB STATUS
Davison Chemical Co.	Cincinnati, Ohio	Polyolefin catalyst		New plant now under construction. Production begins this year. Process licensed from Phillips Petroleum.
Diamond Alkali	Painesville, Ohio	Cement		Expansion completed Oct. 1957.
Du Pont	Antioch, Calif.	Tetraethyl		Continuous-process plant now on stream.
Du Pont	Carney's Point Works, N. J.	Sodium carboxymethylcellulose		New plant planned.
Ethyl Corp.	Pittsburg, Calif.	Tetraethyl lead		New plant, fourth in U. S. and Canada, is now under construction, will be completed in summer 1958.
General Aniline & Film	Los Angeles, Calif.	Sensitized materials	1 million	New plant is expected on stream in mid-1958.
B. F. Goodrich Co.	Akron, Ohio	Adhesives	2.5 million	New plant scheduled for completion in 1958.
B. F. Goodrich Chemical Co.	Henry, Ill.	Organic specialty chemicals	5 million	New plant, to be on stream in 1958, will make specialty organics such as antioxidants for rubber and plastics industry.
Houdry Process Corp.	Paulsboro, N. J.	Catalyst		Plant expansion now under way.
Ideal Cement Co.	Albuquerque, N. M.	Cement	10-12 million	New 1-million-bbl./yr. plant planned
International Minerals & Chemical Corp.	Niagara Falls, N. Y.	Chlorine bleach, exterminants	800,000	Plant expansion completed Dec. 1956.
Isotope Products, Inc.		Boiling-water reactor		Reactor will be designed to optimize production of Co-60 and steam. Construction now under way, will be completed in 1958.
Kendall Co.	Franklin, Ky.	Industrial tapes, plastic	1.3 million	New plant under construction.
Mallinckrodt Chemical Works	Hematite, Mo.	Uranium oxide fuel	750,000	Plant went on stream in Oct. 1956.
Mississippi Valley Portland Cement Co.	Vicksburg, Miss.	Portland cement	3.7 million	New 680,000-bbl./yr. plant is expected on stream in spring 1958.
National Carbon Corp. (division of Union Carbide Corp.)	Lawrenceburg, Tenn.	Fabricated carbon products		New 12-million-lb./yr. plant ready late 1957.
North American Asbestos Corp. and Cape Asbestos, Ltd.	Globe, Ariz.	Asbestos fiber		New 50,000-ton/yr. mill and 10,000-ton/yr. fiber plant are planned.
Olin Mathieson Chemical Corp.	New Haven, Conn.	Nuclear fuel elements, reactor cores		New plant to be completed late 1957.
Olin Mathieson Chemical Corp.	Mapleton, Ill.	Automobile antifreeze	1.5 million	New plant under construction.
Olin Mathieson Chemical Corp.	Niagara Falls, N. Y.	Pentaborane, deca-borane	4.5 million and 36 million	4.5-million plant on stream in late 1957. 36-million plant scheduled for production in early 1959, now under construction.
Pennsalt Chemicals	Calvert City, Ky.	Aerosol propellants, refrigeration gases		One new unit completed, another under construction.
Permanente Cement Co.	Scholle, N. M.	Cement	10 million	Firm has exercised option to buy a 2,200-acre site.
Permanente Cement Co.	Lucerne Valley, Calif.	Portland cement, special cements	13 million	New 2.5-million-bbl./yr. plant now on stream.
Phillips Chemical Co.	Gulf Coast	Carbon black		New 54-million-lb./yr. plant planned.
Texas Portland Cement Co.	Orange, Tex.	Portland cement	3 million	New plant has over 700,000-bbl./yr. capacity.
Union Carbide Chemicals Co.	Niagara Falls, N. Y.	Hydroxymethylcellulose		Expansion due for completion in fall 1957.
Volunteer Portland Cement Co.	Knoxville, Tenn.	Portland cement	435,000	Expansion is boosting capacity by 30-40%.

Literature Available

PLANTS & FACILITIES

Aerosols.....Describes facilities for aerosol loading of cosmetics, pharmaceuticals and household specialties. Services include research and laboratory facilities, plant for processing and mixing.
162A Stalford of Pa.

Air Recovery & Purification.....Company offers bulletin describing air contamination, air recovery, recovery method, installation, capacity and air recovery service. Includes specifications for equipment.
162B Norkem Yakima.

Air Spray.....Ozium Glycolized Air Spray in new, personal size container quickly removes smoke, destroys odors, reduces air-borne bacteria. Come in non-refillable dispenser. Catalog Sheet.
162C Woodlets Inc.

Baffle, Remote Control.....A remote control baffle for fume hoods is operated from an outside control panel. Can be quickly adjusted for any desired air flow aperture in safety. TD 162.
162D U. S. Industrial Chem. Co.

Chromatography.....16 p. booklet outlines the analytical technique of column partition chromatography. Applications are explained with appropriate illustrations to show many principal uses.
162E Merck & Co.

Construction.....Atlas gives a completely integrated construction service which will accept full and sole responsibility for your job and will guarantee every aspect of it. Bulletin CC-3.
162F Atlas Mineral Products Co.

Construction.....Four-page brochure describes methods for high quality steel plate construction used by this reputable firm. Illustrations show actual units being erected on field sites.
162G Chicago Bridge & Iron Co.

Construction & Design, Acetylene.....Company has designed and built facilities for production of more than 150,000,000 pound of acetylene per year, including world's largest plant. Bul. 257.
162H Chemical Construction Corp.

Construction, Process Plant Facilities.....Design, engineering, construction of hydrocarbon processing plants, gas producing plants, chemical plants, high-grade specialty catalysts. Brochure G-306.
162I Girdler Co.

Construction Tank.....16 p. brochure outlines operations and services of this fabricator. Brochure describes technical advances in fabrication of stainless steel and high-temperature alloys.
162J Portland Copper & Tank Wks.

a lever
to get
your
plant
expansion
rolling



... multiplies your own capacity for:

Early completion of erection
Minimized plant investment

Quick startup
Reliable, low cost operation

PROCESS COMPARISONS

Organic Synthesis . . . Petrochemicals . . .
Waste Disposal . . . Absorption . . .
Extraction . . . Distillation.

DESIGN AND DRAFTING

Equipment layout . . . Piping, structural
and electrical design . . . Construction
drawings . . . Bills of Material . .
Vendor drawing check.

COST SURVEYS

JOB STANDARDS

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Coordination to maintain drawing and
procurement budgets and schedules . . .
Periodic reports to Owner.

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Careful analysis of competitive bids . . .
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Thorough inspection.

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VULCAN

Cincinnati, Inc.

General Offices and Plant, CINCINNATI 2, OHIO

HOUSTON BOSTON CHARLOTTE, N. C. ST. LOUIS DENVER SAN FRANCISCO

VULCAN ENGINEERING DIVISION • VULCAN MANUFACTURING DIVISION • VULCAN CONSTRUCTION DIVISION

Inquiry Code Number for This Advertisement-163

Literature Available

Coordinated Technology—
Laboratory Glassware

Coordinated Precision Technology.....

The technological products designed and manufactured by 18 producing companies of GPE Corp. serve more than a dozen major industries. Brochure.

164A General Precision Equip. Corp.

Cut-Machining Units.....

44 p. book explains the types of abrasive cut-off saws, portable combination cut-off and deburring chop saw, swing type cut-off saw and rotating cut-off saw.

164B Wallace Supplies Mfg. Co.

Design & Construction.....

Company can design, engineer and construct plants for ammonia synthesis by the Casale process (Bulletin 0-54-1) and for fat and oil processing (Bulletin ID-40-12).

147A Foster Wheeler Corp.

Design & Construction.....

Company offers illustrated brochures on chemical plants they have designed and built, including facilities for producing nitric acid, complex fertilizer, etc.

164C Chemical & Industrial Co.

Design & Engineering.....

Brochure gives outline of engineering and consultancy service to the chemical and petroleum industries. Examples of designed, engineered and erected plants. Brochure.

164D Petrocarbon Developments.

Design & Engineering, Ammonia Plants.....

Specialized know-how embraces all phases of process and equipment design, fabrication and erection. The company makes available Bulletin 0-54-1.

164E Foster Wheeler.

Design & Fabrication.....

"Collection and Correlation of High Temperature Hydrogen Sulfide Corrosion Data" shows Kellogg's "built-in engineer" approach to process equipment design and fabrication.

164F M. W. Kellogg Co.

Design, Heat Exchangers.....

When heat transfer specifications call for aluminum, aluminum bronze, nickel, copper, stainless steel, or almost any alloy, Downington understands problems. Booklet.

164G Downington Iron Works.

Design & Manufacture.....

Booklet gives a presentation of company's ability to design and manufacture a variety of heavy machinery and machine tools. 44 p. booklet. "This is Farrel-Birmingham."

164H Farrel-Birmingham Co.

Doors, Quick Opening.....

Struthers Wells quick opening doors furnish the means for complete automation, the results of engineering achievements. For details, see Bulletin SW-553.

164I Struthers Wells Corp.

Dyeing.....

Commercial formulas for dyeing, printing, finishing and heat treating fabrics of Arnel and Arnel blends. Formulas for commercial operations provided in bulletin. TD-15A.

164J Celanese Corp. of America.

Dyeing, Textile.....12 p. bibliography lists major technical literature on textile dyeing, printing and finishing. Compiled by the Manchester Library, Manchester, England. Covers the past 30 years.

164K Royce Chemical Co.

Economic Opportunities, Chicago Area.....

New book, "Chicago & Chicago Heights Industrial Economic Blue-Print" describes area, population, labor force, raw materials, transportation, plant sites. Free.

164L Chicago & Eastern Ill. R. R.

Electrochromatography.....

6 p. illustrated brochure describes operation of electrochromatography set and gives specific suggestions for processing proteins, inorganic ions, large particles, viruses.

164M Microchem. Spec. Co.

Electron-Beam Processing, High Voltage.....

Penetrating radiation is being used in a number of projects—preservation of foods, sterilization of drugs, cross-linking of plastics, etc. Bulletin E.

164N High Voltage Engineering.

Electroplating.....

Nine ways to improve electroplating discussed in booklet. Shows how to cut costs by selection of proper compound, use of titrations, tips on rinsing, etc.

164O Diversey Corp.

Engineering & Construction.....

Illustrated booklet gives quick but comprehensive look at Blaw-Knox operations. Shows products engineered and fabricated for construction and chemical industries.

164P Blaw-Knox Co.

Engineering & Construction.....

Sweco offers engineering and construction of refineries, chemical plants and ore beneficiating mills, design and manufacture of process equipment. Request Brochure E-2-32.

164Q Southwestern Engineering Co.

Engineering & Construction.....

Engineering and construction of refineries, chemical plants and ore beneficiating mills. Design and manufacture of process equipment. Full details in Brochure E-3-32.

164R Southwestern Engineering Co.

Engineering & Construction.....

Sweco teamwork is displayed in engineering and construction of refineries and chemical plants and in design and manufacture of process equipment. Brochure E-5-32.

164S Southwestern Engineering Co.

Engineering Service.....

14 p. brochure describes this company's administrative, engineering and production services for supplying customers with lower cost, better quality production parts.

164T New England Prod. Co.

Engineering Service.....

Help protect your equipment investment—application engineering, analytical engineering, product development, field-service engineering, maintenance service. Bul. GED124.

164U Genl. Elec. Co.

Engineering Services, Furnaces.....

Nichols Herreshoff and Bethlehem Wedge furnaces serve industry by treating materials ranging from activated carbon to zircon sand. Buls. BR-1 and 233.

164V Nichols Engrg. & Research.

Engineering Shortcuts.....In booklet "Time Saving Tips for the Draftsman and Engineer" are 59 shortcuts to speed drafting and computation work. Based on interviews.

164W Frederick Post Co.

Engineers-Designers.....

Bulletin on 34 Rubber Div. (designers, compounds, molders of rubber products); Seal Div. (all types of shaft and face seals); Belting Div. (belting, packings, leather products).

164X Chicago-Arms Mfg. Corp.

Epoxy Case Molds.....

4 p. describing system for making case molds from epoxy resins. Detailed mixing data, sealing and parting of the block mold, how to apply surface skin. Bulletin 17.

164Y Smooth-On Mfg. Co.

Epoxy Casting.....

Techniques in using epoxy resin compounds for casting. Of value to makers of models or patterns, vacuum forming molds, dies and potting of electrical components. TB 10.

164Z Smooth-On Mfg. Co.

Equipment, Environmental Test.....

22 p. brochure describes environmental test equipment for testing humidity, temperature, altitude, sand and dust, fungus, rain and sunshine, explosion.

164AA Environmental Equipmt. Co.

Equipment, Laboratory.....

24 p. brochure describes designs and applications of a variety of excitation source units and discharge stands used in spectro-chemical analysis. Detailed specs or tests.

164BB Jarrell-Ash Co.

Extraction.....

Solvent decarbonizing, a "paracritical" liquid-liquid extraction process, is the subject of a 16 p. booklet. Describes process operation in general and its technical and economic advantages.

164CC M. W. Kellogg Co.

Extrusion.....

32 p. manual contains both practical and theoretical discussions of the fundamentals of thermo-plastic extrusion. Separate sections deal with the screw, the die and post extrusion equipment.

164DD Monsanto Chemical Co.

Felt Filtration.....

Data sheet No. 18 is an 8 p. presentation of the advantages of this company's felt for liquid filtration. Charts, diagrams show properties and characteristics of fiber bonded non-woven filters.

164EE American Felt Co.

Fluid Coking.....

12 p. booklet describes a continuous coking process developed by this company. Sections on process flow, feed stocks, product yields and quality, economics, installations.

164FF Esso Research & Eng. Co.

Fume Hoods.....

48 p. catalog includes extensive engineering data and recommendations, operating characteristics and operating cost comparisons on fume hoods. Installation photographs, drawings.

164GG Kewaunee Mfg. Co.

Fume Hoods.....

Improvement gives you complete air flow control inside the fume hood by remote control. You can move the baffle by remote control and change the air flow with one motion. Bul. 56H.

164HH Laboratory Furniture Co.

* From advertisement, this issue

Furniture, Laboratory.....24 p. bulletin describes specifications for over two dozen interchangeable direct-from-stock furniture units for clinical, chemical, metallurgical, educational and pathological laboratories.
165A Fisher Scientific Co.

Furniture, Laboratory.....Company offers valuable free planning aid revised edition of "Steelab" with hundreds of useful ideas for laboratory furniture layouts. Request your copy now.
165B Laboratory Furniture Co.

Glass, Commercial.....Bulletin B-83, 16 p., discusses mechanical, thermal, electrical and chemical properties of glass. Viscosity temperature curves for several commercial glasses, heat transmission data.
165C Corning Glass Works.

Glasses, Flat.....Properties, applications and characteristics of Corning flat glasses are presented in a 4 p. illustrated bulletin. Presents data on several types of glass. Request a copy of Bulletin PE-34.
165D Corning Glass Works.

Glassware, Laboratory.....Catalog 80C100, 16 p., gives specifications and prices on precision-bore burettes, aspirator bottles, gas collecting tubes. Karl Fischer apparatus, separatory funnels, etc.
165E Fischer & Porter Co.

Heads, Safety.....Safety heads act as controlled weak spots in vessels, and would fail safely, with minimum danger from fire, at a lower pressure than the vessels themselves. Send for free catalog.
165F Black, Sivalls & Bryson.

High Polymer Alkyd Technique.....The High Polymer Alkyd Technique involves the formation of a greater proportion of high molecular weight alkyd fractions by stepwise esterification. Paper available.
165G Heyden Newport Chem. Co.

Hydraulic Equipment.....Complete product information and engineering data on hydraulic pumps, fluid motors, aircraft-type pumps and servo systems is found in 16-page illustrated Bulletin 810.
165H Eastern Industries.

Hydrodynamics....."Engineering the Unusual in Hydrodynamics" describes company's facilities and equipment by photographs of commercial installations and description of operation.
165I S. Morgan Smith Co.

Hydroforming.....4 p. bulletin describes a complete hydroforming service for producing short run and development components serving industries such as automotive, guided missiles, electrical.
165J C. B. Kaupp & Sons.

Injection Molding.....Book on Injection Molding of Tenite Acetate and Tenite Butyrate, deals with the methods of forming the Tenite materials into finished articles by injection molding.
165K Eastman Chem. Prod.

Instruments, Laboratory.....Bulletin 19, 12 p., describes several new instruments in the electrochemical, spectrophotometer and gas analysis product fields. Includes photographs and operation diagrams.
165L Beckman Instruments, Inc.

Isomerization Process.....8 p. illustrated brochure describes isomerization process for upgrading pentanes and hexanes. Flow sheet and processing scheme point out economic advantages.
165M M. W. Kellogg Co.

Laboratory Equipment.....Catalog 79, 8 p., describes a line of jar rolling machines for production and laboratory wet or dry grinding, pulverizing and mixing of chemicals, colors, pigments.
165N Abbe Engineering Co.

Laboratory Equipment.....Catalogue lists and describes a complete line of polyethylene laboratory equipment. Includes such items as bottles, funnels, graduates, centrifuge tubes, hand pumps, drain trays.
165O Bel-Art Products.

Laboratory Equipment.....30 p. pictures describes instruments and apparatus for laboratory use including electric incubators, portable Karl Fischer moisture determinator, vapor pressure apparatus.
165P Central Scientific Co.

Laboratory Equipment.....Batch and continuous test models of crushers, screens, ball mills, pulverizers, rod mills, classifiers, agitators, pulp distributors, feeders, etc. Request company's Bulletin LG3-B10.
165Q Denver Equipment Co.

Laboratory Equipment.....Up to the minute listing of the latest in polyethylene laboratory ware contained in 19 p. catalog. Fully illustrated; prices for both small and bulk orders.
165R Harshaw Chemical Co.

Laboratory Equipment.....Three data sheets describe company's Tem-punit for laboratory water baths, portable cooler, and line of insert-type polyethylene fittings for polyethylene sink traps.
165S Arthur S. LaPine & Co.

Laboratory Equipment.....4 p. bulletin lists a selection of equipment for the oil chemistry laboratory. Items are designed to meet specifications published by American Oil Chemists' Society.
165T Arthur S. LaPine & Co.

Laboratory Equipment.....Specially designed laboratory and pilot plant autoclave for use in conducting reactions at high pressures and under severe corrosion conditions is described in Bulletin 939.
165U Pfandler Co.

Laboratory Equipment.....36 p. booklet No. 57 contains photographs, pertinent specifications and prices on a line of laboratory instruments including electrolytic analyzers, combustion furnaces, thermometers.
165V E. H. Sargent & Co.

Laboratory Equipment....."What's New for the Laboratory" 16 p. booklet, describes stainless steel vacuum and pressure filters, flask heaters, molecular stills, pipettes, flexible heating tapes.
165W Scientific Glass App. Co.

Laboratory Equipment.....Brochure describes automatic freeze-drying lab equipment, new type tray dryers, faster manifold-type freeze-dryers, combination units. Just published. TD1258.
165X U. S. Industrial Chem. Co.

Laboratory Equipment.....16 p. catalog features new developments along with standard equipment. Electro-balance, photomicrography illuminator, AC line-operated spectro-photometer among items.
165Y Will Corporation.

Laboratory Equipment.....8 p. leaflet, "New Apparatus and Equipment for the Laboratory," pictures and describes such equipment as microprojectors, refractometers, vacuum pumps, accessories.
165Z Wilkens-Anderson Co.

Laboratory Equipment & Furniture.....Company offers a catalog describing its line of top-quality tables, cases, cabinets, fume hoods & radio chemical lab equipment. For details, request Catalog.
165AA Duralab Equipment Corp.

Laboratory Equipment & Furniture.....Sectional units designed for interchangeability & flexibility assure a synchronized installation for peak efficiency. 180 p. Catalog 4B & Supplement 55-A.
165BB Metalab Equipment Corp.

Laboratory Fixtures.....Catalog PF-57 has heavy-duty fixtures for gas, air, vacuum, tap and distilled water. Features line of forged bronze-alloy needle valves for pressures up to 1,000 psi.
165CC Laboratory Furniture Co.

Laboratory Glassware.....File folder provides method of retaining information on Doerr lines of laboratory glassware for reference. Data Sheets issued regularly for filing. Data Sheets 1 & 2.
165DD Doerr Glass Co.

14 Months

Literature listings in this Inventory Issue cover the period of August 1956-September 1957. Fourteen issues of Chemical Engineering inventoried for your convenience. Complete your files with manufacturers' data.

This master checklist of available data is easy to use. Simply write the code numbers on one of the postcards inside the back cover. Fill it out and mail. It's easy. And you should have your new bulletins within . . .

14 Days

Literature Available

Laboratory Instruments
Plants & Processes

Laboratory Instruments.....Bulletin 2161 describes the use of a softening point kit and a heat distortion tester for polyethylene samples. Suggests modifications for tester use on other plastics.
166A American Instrument Co.

Laboratory Instruments.....4 p. brochure describes new Model 220 industrial gas chromatograph. Flow diagram show how continuous sampling for automatic analysis can be accomplished.
166B Beckman Instruments, Inc.

Laboratory, Processing.....Bufflovak laboratory has solved over 7000 processing problems. This thorough research has led to many new methods in the chemical and allied fields. Catalog 358.
166C Blaw-Knox Co.

Laboratory Services.....10 p. bulletin E-571 outlines services to mineral processing industry; investigation of ores, flow sheet development and plant design and construction. Request a copy.
166D Southwestern Engineer Co.

Laboratory Ware.....Offers many properties important to development, experimental or analytical work. It is chemically stable, stands temperatures to 1900° C. and is easy to clean. Bulletin 793.
166E Norton Co.

Laboratory Ware.....Polyethylene ware for laboratories and clinics is described in an 8-page bulletin. Items include beakers, aspirator bottles, tubing, pipet fillers, vials, carboys. TD 1287.
35-6h *U. S. Industrial Chem. Co.

Maps, Physical.....Presents a huge physical map of New York State and adjacent areas. Includes information on boundaries, transportation, population of cities, elevations in feet, etc.
166F N. Y. State Dept. of Com.

Metal.....24 p. brochure presents an illustrated description of the operation of each company division, varied nature of its production, its basic philosophy. Called "Of Men and Metal."
166G Continental Copper & Steel.

Metal Processing.....28 p. booklet called "Asarco Products and Processes" is a pictorial review of company's mining, smelting, refining and research operations. Includes detailed maps.
166H Amer. Smelting & Refining.

Microfilming.....36 p. booklet called "New Horizons with Microfilm" covers techniques for unitizing microfilm as they apply in handling engineering drawings, personnel records, reports.
166I Industrial Mktg. Services Co.

Microscopes.....20 p. booklet D-1057 describes and illustrates new, Series R research microscopes. Discusses company's 14 different research microscope models in detail.
166J Bausch & Lomb Co.

Model Supplies.....Catalog presents those items which are most common to the field of engineering modelmaking. Company offers listed items and the service of developing others on request.
166K Engineering Model Assoc.

Models, Crystal.....Crystal lattice models of elements, minerals, and alloys listed in 6 p. bulletin. Based on data from X-ray and electron diffraction; magnification is 250 million-fold.
166L Arthur S. LaPine

Models, Industrial.....Bulletin covers cost of a model; delivery; model quality; available scales; how to reproduce model arrangement on blueprints; how to get a model estimate; colors.
166M Industrial Models

Molding.....12 p. brochure called "Check List for Trouble Shooting Polyethylene Injection Molding Problems" outlines causes of burning and scorching, discoloration, distortion surface blemishes.
166N Koppers Co.

Molecular Models.....4 p. leaflet pictures and describes model sets used for construction of accurate three-dimensional representations of molecular structures. Specifications chart covers set's elements.
166O Arthur P. Smith Co.

Nuclear Power.....25 p. detailing in picture and text the phases of design work on the pioneer Commonwealth Edison Dresden nuclear power plant to be completed near Chicago by 1960.
166P General Electric Co.

Nuclear Radiation.....Brochure describes service for radiation testing of materials, radiation effects and damage evaluations. Includes information on use of nuclear radiation in industry.
166Q Radiation Applications Inc.

Odor Control, Petroleum....."Alamask Odor Control for the Petroleum Industry" presents data based on practical tests within the refining fields. Recommends specific odor control chemicals to use.
166R Rhodia, Inc

Oil Industry.....32 p. booklet aims at giving consumers of all petroleum products a realistic understanding of how the oil industry operates. Mostly text, it is told in terms of independent operators.
166S Gulf Oil Corp.

Optical Crystals.....Technical Bulletin 157, 8 p. discusses use of optical crystals in prisms and windows for spectroscopy, lens elements for microscopy, lens elements for military infrared optics.
166T Isomet Corp.

Optics, Infrared.....Bulletin O-105, 2 p., describes infrared optics expressly for use in hyper-sensitive infrared systems. Graphs show properties of optical grade high purity silicon used in IR systems.
166U Texas Instruments, Inc.

Optics, Precision.....Bulletin O-104, 6 p., describes engineering and production of flat, cylindrical, prismatic, spherical and aspherical components for fire control, photographic, projection, etc.
166V Texas Instruments, Inc.

Painting & Coating.....In a leaflet entitled "Painting," the problem of painting & coating failures & what can be done to salvage certain situations are discussed. Some typical cases.
166W Foster D. Snell, Inc.

Percolation Processes.....Technical Bulletin 401 gives data on absorbents, yields and economics for static-bed percolation. Section also describes developments in continuous percolation.
166X Minerals & Chemicals Corp.

Pharmaceutical Equipment.....New catalog describes complete pharmaceutical line including tablet presses, tube fillers, capsule fillers, etc. Catalog is illustrated and gives full specifications.
166Y Arthur Colton Co.

Pharmaceuticals Production.....28 p. booklet describes the organization as well as the operation of this pharmaceuticals manufacturer. Covers company's research, engineering, products and markets.
166Z Merck & Co.

Photocopying Machines.....Company offers case history brochure on the use of a Rectigraph photocopying machine. Describes how it speeds paperwork, eliminates errors, & cuts costs on reports, etc.
166AA Haloid Co.

Plant Layout Kit.....Planning cube provides three-dimensional layout right in the engineering department. With kit described in brochure you can see what are best locations and correct errors.
166BB Visual Plant Layouts

Plant Sites.....Data on raw materials, transportation, power and fuel, markets, labor, facilities, sites, community services, laws and regulations, etc. Also map. "Industrial Location Services."
166CC N. Y. State Dept. of Com.

Plants, Chemical.....Brochure on plants for manufacture of alkylid resins, fatty alcohols, phenolic resins and maleic anhydride, and for fatty acid hydrogenation. Offers flow sheets, etc.
166DD Industrial Process Eng.

Plants, Nitric Acid.....Complete facilities for nitric acid are available in all markets of the world. C & I plants use the du Pont process. Illustrated brochure available on request.
89 *Chemical & Industrial Corp.

Plants, Nitric Acid.....4 p. two-color bulletin describes how efficient, low-cost production of Nitric Acid is possible. Includes typical operating requirements for Nitric Acid manufacture.
166EE Fluor Corp.

Plants, Nitric Acid.....Girdler nitric acid plants offer greater economy, in both investment and operating costs, than atmospheric or low-pressure units. Company gives details in bulletin.
166FF Girdler Co.

Plants & Processes, Fats & Oils....."Plants and Processes for the Fats and Oils Industry" describes equipment which offers top economy in the extraction and preparation of these products. Request a copy.
166GG Blaw-Knox Co.

* From advertisement, this issue

DAMP SURFACE TOLERANCE...

of new vinyl primer



stops
coating
failures
like
this

New PRUFCOAT VINYL-WELD PRIMER P-62 has a "formulated-in" safety factor of damp surface tolerance that gives you low-cost insurance against costly premature coating breakdowns due to surface dampness at the time of primer application.

The above photograph shows what happened . . . just a few short weeks after job completion . . . when an ordinary vinyl primer was used over damp, wire-brushed steel. Failures of this kind can play havoc with painting maintenance costs . . . cut sharply and unexpectedly into your net operating profit.

In money-saving contrast, PRUFCOAT VINYL-WELD PRIMER P-62 . . . under identical damp surface application conditions . . . provides complete protection with no sign of breakdown after many months of punishing corrosive exposure.

But this damp surface safety factor is by no means all this new primer has to offer. There are these other important primer features too . . .

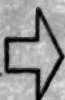
**SUPERB ADHESION • SUPERIOR RUST INHIBITION
EXCELLENT CHEMICAL RESISTANCE • QUICK DRYING**

Versatile Primer P-62 is exceptionally low in cost. It is for use over wire-brushed rusty steel or blast cleaned steel. It can be brushed. It can be sprayed. It can be hot sprayed!

PRUFCOAT

PROTECTIVE COATINGS

SEND COUPON TODAY FOR THE FULL STORY ON
THIS GREAT NEW PRUFCOAT VINYL PRIMER.



PRUFCOAT LABORATORIES, INC., 63 Main Street, Cambridge 42, Mass.
Please send me Bulletin No. 018 on Prufcoat Vinyl-Weld Primer P-62.

NAME _____
TITLE _____
COMPANY _____
ADDRESS _____
CITY _____ ZONE _____ STATE _____

PRUFCOAT LABORATORIES, INC. • 63 Main Street, Cambridge, Mass.

New Plants & Facilities

Literature Available

Plastics

Waste Treatment

Plastics Molding.....73 p. handbook details basic principles of molding and handling Plaskon urea and melamine molding compounds. Covers storage, preforming, preheating, molding and testing. 168A Allied Chemical & Dye Corp.

Polyethylene Ware.....Bulletin contains descriptive material and photographs of a variety of polyethylene ware for general laboratory use. Describes funnels, siphons, bottles, etc. Bulletin 35. 168B Central Scientific Co.

Polyethylene Ware.....Brochure lists complete line of polyethylene ware for laboratory use. Illustrates and describes items made of standard polyethylene as well as high heat polyethylene. Request a copy. 168C Scientific Glass Apparatus.

Processes, Bonding....."The Permadizing Story," a unique brochure, describes Permadizing, the rubber-to-metal bonding process developed by Stillman Rubber Co. Copies available. 168D Stillman Rubber Co.

Porous Mediums.....Plates and tubes with uniform porosity over entire area. Made of strong, chemically stable Alundum material, engineered for resistance to acid and alkali conditions. Literature. 168E Norton Co.

Processes, Membrane Unit.....Ionics now makes available a membrane unit process... demineralization, purification, conversion, recovery, separation, concentration. Ionics Bulletin. 168F Ionics, Inc.

Processes, Silver Plating.....Technical paper describes Silvrex Bright Silver Plating Process. Covers in detail such topics as bath makeup and maintenance, anodes, tanks, temperature; agitation; etc. 168G Sel-Rex Precious Metals.

Product Development.....Brochure, "How to Develop Successful New Products," describes principles and case histories of a consultant in the product development field. Includes research, testing, finance. 168H Foster D. Snell, Inc.

Production Facilities.....Comprehensive production facilities available for contract work; manufacturing facilities, experienced personnel, flexibility, dependability. Foundry, metal working, etc. Bulletin. 168I Troy Engine & Machine Co.

Public Relations, Atomic.....A new book on public relations for the atomic industry discusses the atom as news, what the public wants to know about it, sources of information and techniques. TD 1249. 168J U. S. I. Chemicals Co.

Pulping Equipment.....Bulletin entitled "Laboratory Equipment for the Pulp and Paper Industry" describes the equipment items in a complete line of this specialized equipment now offered in the U.S. 168K Mertecfelt Corp.

Recorder, Laboratory....."Scientific Apparatus and Methods," Vol. 9, No. 2, covers a new multi-range vertical strip chart recorder for the lab bench. Includes latest catalog revisions on company's line. 168L E. H. Sargent & Co.

Recruiting.....24 p. outlines technical opportunities available at the company's research and development laboratories at Marcus Hook, Pa. Descriptions of the work of sections and groups. 168M American Viscose Corp.

Refinery Design.....American Oil Co.'s new refinery at Yorktown, Va., is described with detailed sections on the major areas. The 16 p. booklet covers the combination, product transfer facilities, effluent treating. 168N M. W. Kellogg Co.

Refining, Solvent Mixtures & Organic By-Products.....Technically trained personnel are available to discuss the refining of any solvent mixture or organic by-products. See booklet. 1690 Truland Chemical Co.

Research.....Bulletin covers facilities involving electrical, mechanical, physics, nuclear, chemical, metallurgical, and processing research projects. Company offers details in Bulletin 48B9448. 168P Allis-Chalmers Mfg. Co.

Research.....First issue of quarterly bulletin reporting research on new chemicals or new applications for existing products. Covers oily amines, alpha-sulfoalkyl acids, ethochemicals. 168Q Armour & Co.

Research.....Bulletin describes Fluor Research facilities which are available to industry on a contract basis. Explains services offered by the staff and gives case histories of recent projects. 168R Fluor Corp.

Research....."An Approach to Interpretive Research", 24 p. Bulletin S-1053 describes company's laboratory facilities and investigations that bridge the gap between theory and practical application. 168S Selas Corp. of America.

Research.....32 p. booklet describes how company has used continuing research to achieve better automobile frames, line pipe, pressure vessels, welding electrodes, glass-lined water heaters. 168T A. O. Smith Corp.

Research.....Company is working on a direct reduction process for producing iron that involves the application of the fluid bed technology, bypassing the blast furnace. "New Developments." R32 *Arthur D. Little Inc.

Research, Nuclear Metals.....Company has made substantial contributions to the study, development, evaluation and fabrication of many new materials for nuclear reactors. "Nuclear Fuels" report. L32 *Nuclear Metals Inc.

Roll-Setting.....Hydra-Set is a hydraulic roll-setting device that takes guesswork out of roll settings. Optional equipment on new mills or field conversion kit. Spec. Sheet No. I-400 R.M. 168U J. H. Day Co.

Sampling Equipment.....Bulletin SSB-103 describes a highly accurate line of precision built splitters designed for sampling fine materials which segregate easily. Design, construction. 168V Carpc Co. Mfg. Co.

Services & Facilities, Testing.....72 p. bulletin covers chemical, electrical, electronic, mechanical and physical, and photometric, radiometric and colorimetric testing. Copies of bulletin available. 168W Elecl. Testing Labs.

Spectrochemical Analysis.....28 p. brochure describes basic fundamentals of spectrochemical analysis. Outlines methods, instruments, accessories. Includes bibliography. Request your copy. 168X Jarrell-Ash Co.

Splitters.....New precision splitters for sampling accuracy in assay and microscopic work feature multiple chutes down to 1/4 in. wide, machined parts, elimination of traps. Data on TD1256. 168Y U. S. Industrial Chem. Co.

Springs, Breather.....Breather Springs solve the problem of damaged insulation when hot tanks, towers, pipes and vessels expand and contract. Additional information is made available by company upon request. 168Z Techalloy Co.

Sugar Turbidity.....Refined Syrups and Sugars, Inc. announces report entitled, "Sugar Turbidity Facts," which outlines the preliminary findings of a Turbidity Research Program by company. 168AA Refined Syrups & Sugars.

Technical Glassware.....234 p. catalog contains prices on 11,130 items of laboratory and scientific glassware. Called Catalog TG-15, it contains special section on small apparatus. 168BB Kontes Glass Co.

Testing, Laboratory.....Testing laboratory facilities for complete batch or pilot tests. Ample test facilities for investigations on crushing, grinding, mixing, classifications, separation, etc. Bulletin T4-B15. 168CC Denver Equipment Co.

Testing Machine.....Operating information on a lubricant-friction-wear testing machine is incorporated in 2 p. bulletin 106. Lists specifications in both the English and metric systems. 168DD Alpha Molykote Corp.

Testing Services.....12 p. facilities brochure illustrates plant and equipment facilities along with details of testing services offered to manufacturers of military and commercial equipment. 168EE Aerotest Laboratories.

Waste & Sewage Treatment.....Two booklets report results in water, waste and sewage treatment with use of Separan 2610, Dow's high speed flocculating agent. Available upon request. 168FF Dow Chemical Co.

Waste Treatment, Industrial.....Bulletin covers bar and disc type screens, traveling water screens, screenings grinders, grit collectors and washers, cross collectors, scum removers, etc. Send for free Catalog 905. 168GG Jeffrey Mfg. Co.

* From advertisement, this issue

1957 INVENTORY

Waste Water & Conservation Systems Makes available literature on The Gale Interceptor, separator & waste water treatment systems, economical in construction & maintenance cost.

169A Gale Separator Co.

Water Treatment..... Technical paper No. 134, "Biological Fouling in Cooling Water Systems," discusses common problems of slime and algae and selection of control agents and the proper toxicant.

169B Betz Laboratories, Inc.

Water Treatment..... Technical paper No. 135, "Conductivity Vs. Sodium By Flame Spectrophotometer in Steam-Purity Studies," presents results of extensive laboratory and plant work.

169C Betz Laboratories, Inc.

Water Treatment..... Company offers folder on water treatment importance of water; water treatment by ion exchange; research facilities; types of equipment; terminology; modernization. Request copy.

169D H. M. Mueller Corp.

Water Well Systems..... Covers Layne water well systems, oil and water lubricated Vertical Turbine Pumps, special water well drilling, service work, shutter screens, irrigation wells and pumps, etc. See Bulletin No. 100.

169E Layne & Bowler.

Wood Engineering..... 25th anniversary booklet on company, clearing house for technical data on designing and building in engineered timber, cites activities and facilities serving the wood industry.

169F Timber Engineering Co.

Yarns, Textile..... 8 p. brochure contains facts about the company's textile yarns. Describes product & some end uses. Includes yarn comparison table, etc. Request form TYN-1.

169G L.O.F. Glass Fibers Co.

Zirconia Ware..... Properties and characteristics of stabilized zirconia ware are described. Includes comprehensive refractory comparison chart on zirconia. List types of crucibles, tubing, boats available.

169H Laboratory Equipment Corp.

Accelerator, Rubber..... Bunac D-74 supplements other primary accelerators; particularly useful in compounding GR-S rubber. Gives many improved properties to rubber. Write for details.

169I Olin Mathieson Chem. Corp.

Acetonitrile..... Technical information includes physical & chemical properties, solubilities of various materials in acetonitrile, specific reactions, physiological properties, etc. Request Bulletin P-7501D.

169J Carbide & Carbon Chem.

→ Want more information on any of these items? Just write its code number on one of the postcards inside the back cover, then mail it to us. It's that easy now.

Complete Service

DESIGN

by our own engineering staff

INSTALLATION

by our own construction crews

MAINTENANCE

by our own service specialists

of Non-Metallic
Corrosion-Resistant

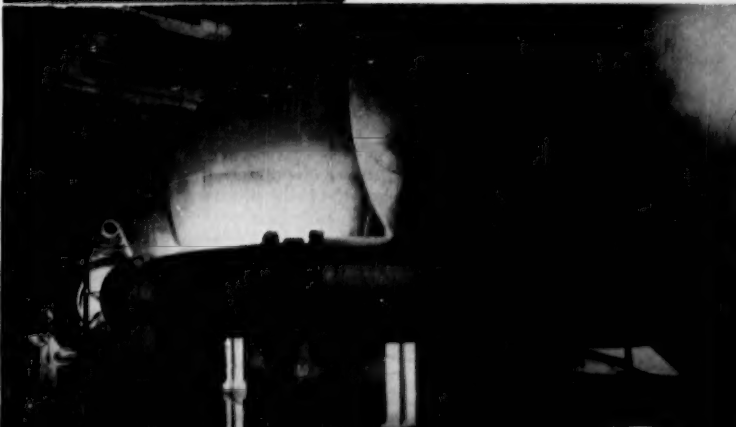
LININGS and TILE TANKS

Designed and installed to meet the exact chemical and physical requirements of each installation, Stebbins linings and tile tanks are industry-famous for their efficiency and economy.

Wherever you are—whatever your corrosion-resistance problem may be (even at high temperature and high pressure)—it will pay you to take advantage of Stebbins' unequalled design experience and installation facilities.

Write for Bulletin A-153

Chemical Engineering Catalog
See our Advertisement in



STEBBINS

Engineering and Manufacturing Company, Watertown, N. Y.

STEBBINS ENGINEERING CORP. 1504 TOWER BLDG. SEATTLE, WASH.
CANADIAN STEBBINS ENGR. & MFG. CO. LTD. TOWN OF MOUNT ROYAL, MONTREAL, CANADA

SINCE 1884

Specialists in Design, Installation, and Servicing of Linings and Tile Tanks

SEMCO

1957

I INVENTORY

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New Chemicals & Materials . . .

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Everything newsworthy from A to Z—from actinium to zeolites—is included in this fourth annual inventory of new commercial chemicals and materials. Neither a directory of chemical products nor a listing of new research or specialty products, these 242 items were described in the August 1956-August 1957 issues of CE. And they've been carefully screened by our editors for their specific interest to chemical engineers. For more information on any item, write its code number on one of the Reader Service postcards inside the back cover, then mail to us. Entries have been categorized like this . . .

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• Agricultural Chemicals

Diethyl *m*-Toluamide

Insect repellent. (171A)

... Diethyl *m*-toluamide, described by USDA as best all-purpose repellent against wide variety of insect

pests, is in commercial production at Brunswick, Ga.—*Hercules Powder Co., Wilmington 99, Del.*

Fertilizers, Molybdenum

For starting plants and foliar spray applications. (171B)

... Three molybdenum-containing fertilizers provide necessary molybdenum (equivalent of 0.088% molybdenum oxide) for fixation of nitrogen by legumes and for reduction of nitrates to ammonia for protein build-

ing in both legumes and non-legumes. Two of the fertilizers—Nutri-Leaf 60 (20-20-20) and VHPF (6-25-15)—are soluble; Liqua-Leaf (10-10-8) is a liquid.—*Miller Chemical & Fertilizer Corp., Baltimore, Md.*

Fumigant, Soil

Pest killer now offered by new source. (171C)

... Vapam, soil fumigant introduced by Stauffer Chemical Co., has been given an unqualified OK by plant scientists at Louisiana State University for use in controlling weeds, dis-

eases, grasses and nematodes. And it's now available from a new source, Du Pont.—*Stauffer Chemical Co., New York 17, N. Y.; E. I. du Pont de Nemours & Co., Wilmington 98, Del.*

Fungicide

Effective in agricultural, nonagricultural applications. (171D)

... As an agricultural formulation, N-trichloromethylthiotetrahydrophthalimide controls and prevents fungi-caused diseases afflicting apples, carrots, celery, cherries and other crops. And the same properties which

account for its success in crop treatment make it look equally promising in such nonagricultural applications as paints, plastics, lacquers, pharmaceuticals.—*Esso Research & Engineering Co., New York 19, N. Y.*

Fungicide

99.5% pure. (171E)

... New form of tetramethyl thiuram disulfide boasts high purity and activity plus micronized particle size.

Fungicide and rubber accelerator are potential applications.—*Acet Chemical Co., Flushing, N. Y.*

Gibberellic Acid

Plant growth regulator. (171F)

... Gibberellic acid speeds growth of various field crops, grasses, tobacco, vegetables and flowers. Other potential uses: breaks dormancy in specific

plants, stimulates germination in certain seeds and the acid also reverses dwarfism.—*Eli Lilly and Co., Indianapolis, Ind.*

Mulching Film

Black polyethylene. (171G)

... Tests made on black mulching film made from specially formulated polyethylene show that it more than pays for itself in first ten weeks of the growing season by forcing produce to early maturity. Also, black-mulched part of experimental garden at Kentucky's Agricultural Experiment Station was weedless and vege-

tables were bigger and healthier. Both clear and opaque films keep ripening fruit from contact with moist ground. But opaque film also controls weeds. Of various pigmented polyethylenes, black seems most durable when mulches are left in place for more than one season's use.—*Bakelite Co., New York, N. Y.*

Pesticide

Recommended for use on cotton. (171H)

... Three years of tests have shown that Hercules 523 controls an unusually wide range of pests and has long-lasting residual effectiveness. A dithiophosphate of dioxane, Hercules

523 has a lower degree of toxicity to warm-blooded animals than most phosphate insecticides now on the market.—*Hercules Powder Co., Wilmington 99, Del.*

Piperazine

Deworms livestock. (171I)

... Free-flowing form of high purity piperazine is said to increase its usefulness in poultry and swine deworm-

ing. Product is shipped in 100-lb. fiber drums.—*Jefferson Chemical Co., Houston, Tex.*

Piperazine Salts

Deworm livestock. (171J)

... Piperazine salts are said to be more convenient form of active piperazine ingredient for deworming livestock because: They're easy to ad-

minister, generally given in drinking water or feed, are 90-100% effective.—*Union Carbide Chemical Co., New York, N. Y.*

Synergist, Pyrethrin

Less toxic and cheaper in produce, animal sprays. (171K)

... Synergist for pyrethrins and related insecticides is said to be more effective and therefore to cost less to use than other available synergist formulations for equal knockdown and kill. Called Sesoxane, it affords high kill without use of DDT or other

toxic insecticides. Therefore it's expected to interest formulators and packagers of insecticides where a safer product is required for use on grains, fruits and in household and animal sprays.—*Shulton, Inc., New York, N. Y.*

• Bonding Agents

Adhesives, Laminating

Used in foil lamination.
(172A)

... Three laminating adhesives are Resyn 36-6324, Resyn 76-3930, Resyn 76-3944. 36-6324 is used in laminating cellulose acetate butyrate to foil in metallic yarn production. 76-3930 laminates printed cellulose acetate to

foil to make "boillable" flexible containers. 76-3944 is used to laminate Mylar to metallized Mylar or Mylar to foil.—*National Adhesives Div., National Starch Products Inc., New York 16, N. Y.*

Binder, Silicate

For mold and core production.
(172B)

... As a bond, Moroc—silicate-based sand binder—won't separate on storage; offers low viscosity, good bench life, superior gas reaction; good storage life of finished cores; good collapsibility. In mold and core produc-

tion it offers elimination of baking or drying operations, superior dimensional accuracy in molds and cores, superior casting finishes. Binder simplifies control.—*Delhi Foundry Sand Co., Cincinnati 33, Ohio.*

Glue, Resin-Emulsion

Sticks to silicone-treated vials.
(172C)

... Glastick 9499 will actually penetrate the silicone layer on any glass container to bond on the glass surface underneath. Its bond is well within

the requirements of Army-Med specifications for water immersion.—*Paisley Products Inc., New York, N. Y.*

Tape, Pressure-Sensitive

Better than cellophane.
(172D)

... No. 66 tape uses a special polyethylene-surfaced cellulose backing. Its adhesive is a special long-aging, pressure-sensitive transparent resin. Top surface resists acids and alkalis;

is impermeable to greases, oils, powder. Unlike regular cellophane tape, No. 66 has dimensional stability with flexibility at low temperatures.—*General Tape Corp., St. Paul 1, Minn.*

• Lubricants

Additive, Motor Oil

Stops engine sludging.
(172E)

... Detergent motor oil additive No. "7" M.O.A. works in presence of water by enveloping sludge particles with a water-resistant coating. Addi-

tive may halt sludging of automobile engines in stop-and-go driving.—*E. I. du Pont de Nemours & Co., Wilmington 98, Del.*

Additives, Lube Oil

Improve viscosity index.
(172F)

... Omavis 10 and 20 are two viscosity index improvers for lube oils. Viscous solutions of polymers in oil, products

have outstanding resistance to shear breakdown.—*Olin Mathieson Chemical Corporation, New York, N. Y.*

Greases, High-Temperature

Based on molybdenum disulfide.
(172G)

... Series of greases based on molybdenum disulfide and modified form of bentonite clay is capable of giving efficient lubrication at working pressures of the order of 100,000 psi.

Therefore greases can be used in machinery which is operating continuously at temperatures as high as 450 F.—*Rocol Ltd., Rocol House, Swillington Leeds, England.*

Lubricant

Multi-purpose.
(172H)

... Atlantic Multi-Purpose Lubricant can be used in chassis lubrication, lubrication of wheel bearings, water pumps, track rollers, grease type uni-

versal joints, ball and roller bearings. It's water repellent, can be used at high temperatures.—*Atlantic Refining Co., Philadelphia, Pa.*

Lubricant

Protects machinery operating at high temperatures.
(172I)

... Unlike conventional compressor oils, Keystone No. 49 Light doesn't evaporate or carbonize when baked in thermostatically controlled ovens for 72 hr. at 300 F. Developed for air compressor use, No. 49's low carbon content and anti-gumming features make it useful for ring bearings in electric motors, multi-plate friction clutches, plastic molding heat transfer systems.—*Keystone Lubricating Co., Philadelphia, Pa.*



Lubricant, Compressor

Fire resistant, minimizes carbon deposition.

(173A)

... Pydraul AC is a synthetic air compressor lubricant which not only minimizes explosions and receiver fires, but also has a marked ability to reduce carbon deposits on exhaust

valves and air system piping. Advantages: important maintenance savings plus a wide safety margin in compressed air systems.—*Monsanto Chemical Co., St. Louis 4, Mo.*

Lubricant, Diesel

Cuts wear in residual-fuel-powered ships.

(173B)

... Tro-Mar DX-130 reduces wear up to 90% in pistons and liners of large, slow-speed diesel engines powering tankers, cargo and passenger ships using residual fuels. As a re-

sult of wear reduction, substantial savings in maintenance and parts replacement are realized.—*Esso Research and Engineering Co., New York 19, N. Y.*

Lubricant, Reactor

Protects control mechanism in atomic reactors.

(173C)

... A varnish producing a molybdenum disulfide film lubricates, via dry treatment, control mechanisms at Calder Hall Atomic Power Station in England. Because film, Molytex, not only lubricates but also protects

mechanism from corrosion by CO₂, heat and humidity, it's also being used to treat replacement equipment and to pretreat control equipment to be stored.—*Rocol, Ltd., Rocol House, Swillington, Leeds, England.*

Lubricants, Wear-Resistant

Prevent leakage, cut costs.

(173D)

... 5P line of acid- and alkali-resistant greases affords protection against more than 100 corrosive agents and solvents used in food processing, chemical, rubber, plastics, paper, textile industries. Line consists of three

different types—5P7, 5P8, 5P9. All three provide lubrication to plain and antifriction bearings, pump packing glands and lubricating plug valves.—*Keystone Lubricating Co., Philadelphia 32, Pa.*

Paraffin, Coal-Derived

Highly pure, low cost.

(173E)

... Parafint is an exceptionally hard, high-melting-point wax derived from coal. It differs from conventional paraffin waxes primarily in its high temperature properties and crystal structure. Crystal size is much finer and more like petroleum microcrystalline waxes. Melting point is 214

F.; upper limit of conventional paraffin waxes is 150 F. Suggested uses include chemical raw material, petroleum wax modifier, detackifier, lubricant, hardening or stiffening agent in plastic and rubber processing, polish formulations.—*Moore & Munger, New York 6, N. Y.*

Waxes, Microcrystalline

Increase rigidity of high-pressure polyethylene.

(173F)

... FT microcrystalline synthetic mineral waxes can be blended with high-pressure polyethylene to increase rigidity. Waxes are compatible in all proportions with poly and don't sepa-

rate after blend has been aged. Waxes improve poly's transmission barriers for water and alcohol vapor, gas and odor.—*Dura Commodities Corp., New York, N. Y.*

• Maintenance Chemicals

Actinium

Artificially produced for use in radioactivity well logging.

(173G)

... Separated actinium is mixed with beryllium to make actual source needed for oil industry's neutron logging operations. Radioactivity well logging makes use of naturally occurring and induced nuclear radiations to obtain useful information regarding

formations penetrated by borehole. Actinium was selected for artificial production because its extremely long half-life, its high neutron emission vs. low gamma ray emission contribute to success in this application.—*Well Surveys, Inc., Tulsa, Okla.*

Additive, Salt

Prevents salt from hardening and freezing.

(173H)

... Storit, an inorganic additive, alters or weakens the crystalline bond between salt grains, prevents caking and freezing. It therefore eliminates need for expensive, inefficient storage facilities; saves tax dollars by increasing efficiency with which rock salt can be handled; improves safety of winter roads by permitting speedy distribu-

tion of rock salt in the important first few minutes when storms strike or ice starts to form.—*International Salt Co., Inc., Scranton, Pa.*



MAINTENANCE CHEMICALS, *cont.*

Alloy, Polyplastic

Seals concrete walls.
(174A)

... Permagile is said to be the first material which can weld concrete, brick, cement and cinder block, and all other masonry building products with a bond stronger than the joined material itself. Epoxy-based polyplastic alloy is extremely tough and hard; unaffected by aging or atmospheric conditions; unharmed by alkalis, most acids and chemicals. Permagile water-proofs concrete permanently, withstands water pressure to 30 psi.—*Permagile Corp. of America, Long Island City 1, N. Y.*



Barriers, Evaporation

Cut vapor losses by as much as 75%. (174B)

... Agile Mini-Vaps, expanded polyethylene miniature floats containing thousands of tiny air cells for buoyancy and light weight, are evaporation barriers designed to minimize industrial evaporation losses. They ex-

hibit outstanding chemical and solvent resistance, can't be punctured or broken. Applications include plating, fermentation, textile, dye and solution tanks; paper mills.—*American Agile Corp., Bedford, Ohio.*

Chlorinated Solvent

Least toxic. (174C)

... Reagent grade 1,1,1-trichloroethane makes an ideal substitute for chloroform or carbon tetrachloride in dithizone tests for metals because toxicologists rate it as one of the least

toxic of chlorinated solvents. It also serves as a general purpose cold degreaser and cleaner for all common metals.—*Fisher Scientific Co., Pittsburgh 19, Pa.*

Coating, Vapor Barrier

Retards vapor transmission through any building material. (174D)

... VB Coating is a vinyl resin solution guaranteed to retard rate of vapor transmission to not more than 0.3 grain/sq. ft./hr. (1-in.-Hg vapor differential at 80 F.) through any

building material. Coating is weather resistant and it's particularly useful in areas requiring humidity control—e.g., warehouses, storage.—*Ellis & Watts, Inc., Cincinnati 36, Ohio.*

Conditioners, Water

Control scale, corrosion in cooling tower systems. (174E)

... Three water treatment products—Calgon Scale Remover, Micromet Plates, Calgon Algaecide—control scale, corrosion and algae in cooling tower systems. Scale remover is used to clean systems in which scale is

already present. Micromet, a phosphate chemical, available in slowly soluble plate form, prevents build-up of lime scale. Periodic doses of Algaecide keep slimy growths under control.—*Calgon, Inc., Pittsburgh, Pa.*

Deodorant-Disinfectant

Deodorant gains disinfecting, bleaching power. (174F)

... Dichloro-dimethylhydantoin, widely used as a deodorant block, can now be used for disinfecting or sterilizing purposes. Addition of decomposition retardants has produced com-

pounds which evolve chlorine over a relatively long period of time at the steady controlled rate needed for disinfecting, sterilizing.—*Davies-Young Soap Co., Dayton, Ohio.*

Heat Retainer

Chemical compound maintains temperature in shipping container. (174G)

... 1-qt. can of chemical compound, one of a new series collectively called Transit-Heat, can maintain an even temperature in a 800-cu.-in. volume of an insulated package by releasing or absorbing 300 Btu. latent heat. Enclosed along with perishable contents in a shipping container, can of one of new compounds can keep interior at any temperature between 40 and 120 F. for as long as container is in transit. Each can is reusable, after recharging.—*Jet-Heat, Inc., Englewood, N. J.*

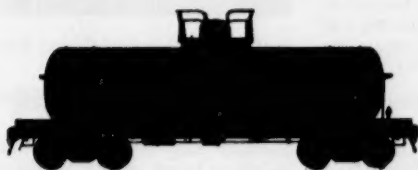


FOR MORE INFORMATION on any item in this section, write its code number on one of the Reader Service postcards (inside back cover) and mail. It's fast and easy.

For
FLUORINE
gas or liquid



HYDROFLUORIC ACID
aqueous or anhydrous



**INORGANIC FLUORINE
COMPOUNDS**



see
GENERAL CHEMICAL

General Chemical's leadership in fluorine chemistry is well established . . . widely recognized. The inorganic fluorine compounds listed here are available now—in commercial or research quantities. Many others are under investigation, or can be produced readily if required. Whenever you need fluorine chemicals of any type—call *General Chemical*, industry's primary source of supply for elemental fluorine, hydrofluoric acid and the fluorine compounds produced from them.

CHEMICAL ENGINEERING—Inventory Issue 1957

FLUORINE

Elemental Fluorine,
Gaseous & Liquid

ACIDS

Fluoboric Acid
Fluosulfonic Acid
Hydrofluoric Acid, Anhydrous
Hydrofluoric Acid, Anhydrous
High Purity
Hydrofluoric Acid, Aqueous
Hydrofluoric Acid, Aqueous,
Purified & Reagent
Hydrofluoric Acid, Electronic

ACID FLUORIDES

Ammonium Bifluoride
Potassium Bifluoride
Sodium Bifluoride

ALKALI FLUOBORATES

Ammonium Fluoborate
Potassium Fluoborate
Sodium Fluoborate

ALKALI FLUORIDES

Ammonium Fluoride
Potassium Fluoride,
Crystal & Anhydrous
Sodium Fluoride, Technical
Sodium Fluoride, Reagent

**BORON FLUORIDE
COMPLEXES**

Boron Fluoride Ether (Diethyl)
Complex
Boron Fluoride Phenol Complex
Boron Fluoride Diacetic Acid
Complex
Boron Fluoride Di-n-Butyl
Ether Complex
Boron Fluoride Dihydrate
Boron Fluoride Piperidine
Complex
Boron Fluoride Ethyl
"Cellosolve" Complex
Boron Fluoride Hexamethylene-
tetramine Complex
Boron Fluoride Monoethylamine
Complex
Boron Fluoride Para-cresol
Complex
Boron Fluoride Triethanolamine
Complex
Boron Fluoride Urea Complex

DOUBLE FLUORIDES

Chromium Potassium Fluoride
Potassium Ferric Fluoride
Potassium Nickel Fluoride
Potassium Titanium Fluoride
Potassium Zinc Fluoride
Potassium Zirconium Fluoride
Sodium Zirconium Fluoride

Sodium Silico Fluoride
Potassium Aluminum Fluoride

HALOGEN FLUORIDES

Bromine Trifluoride
Bromine Pentafluoride
Chlorine Trifluoride
Iodine Pentafluoride

METAL FLUORIDES

Aluminum Fluoride
Aluminum Fluoride, Crystal
Antimony Trifluoride
Antimony Pentafluoride
Barium Fluoride
Bismuth Trifluoride
Cadmium Fluoride
Calcium Fluoride
Chromium Fluoride
Cupric Fluoride
Lead Tetrafluoride
Magnesium Fluoride
(Not Optical Grade)
Mercuric Fluoride
Manganese Trifluoride
Molybdenum Hexafluoride
Nickelous Fluoride
Selenium Hexafluoride
Silicon Tetrafluoride
Silver Difluoride
Stannous Fluoride
Strontium Fluoride
Titanium Tetrafluoride
Tellurium Hexafluoride
Tungsten Hexafluoride
Zirconium Tetrafluoride

**NON-METALLIC
FLUORIDES**

Boron Fluoride, Gas
Sulfur Hexafluoride

**METAL FLUOBORATE
SOLUTIONS**

Cadmium Fluoborate
Chromium Fluoborate
Cobalt Fluoborate
Copper Fluoborate
Ferrous (Iron) Fluoborate
Indium Fluoborate
Lead Fluoborate
Nickel Fluoborate
Silver Fluoborate
Stannous (Tin) Fluoborate
Zinc Fluoborate



Basic Chemicals
for American Industry

GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

Inquiry Code Number for This Advertisement-175

175

MAINTENANCE CHEMICALS, *cont.*

Hydrazine Solution

Nonflammable, scavenges
O₂ in boiler feedwater.
(176A)

... Scav-Ox, 35% aqueous hydrazine solution, has neither flash nor fire point, yet retains all of hydrazine's advantages over traditional sodium sulfite as an oxygen scavenger and corrosion inhibitor—higher oxygen removal efficiency, adds no dissolved solids to water, improves heat transfer, effects savings in material costs. Scav-Ox can readily be fed continuously to industrial boilers—both high- and low-pressure types—safely and conveniently. Although cost per pound is higher than that of other water treating chemicals, its effectiveness usually results in decreased treating cost. Aside from boiler feedwater field, some applications showing promise include laying up idle boilers in wet storage, hydraulic testing of process equipment, water circulating systems in nuclear reactors.—Olin



Mathieson Chemical Corp., New York 22, N. Y.

Lining, Protective

Corrosion resistant.
(176B)

... Flexible thermoplastic lining material shows extraordinary resistance to broad range of acids, alkalis, salt solutions and solvents commonly found in storage tanks, processing tanks, medium to large diameter pipes and fittings, fume ducts and hoods. Called

Saraloy 898, it's an elastomeric copolymer based on vinylidene chloride. It can be readily installed in the field or in applicator's plant by using chemically resistant Saraloy 898 adhesive system.—Dow Chemical Co., Midland, Mich.

Mastic, Fire-Retardant

Insulates metal surfaces
against 2,000-F. flame.
(176C)

... Fire-Retardant Insulating Mastic No. 5501 is a resinous compound that will insulate a metal surface against reaching 1,000 F. for 30 minutes while being subjected to 2,000-F. flame. Mastic can be sprayed or

trowelled on metal, wood, fibreboard and other materials. Compound also serves as coating to insulate, reduce condensation, waterproof in range of -20 F. to +250 F.—Insul-Mastic Corp., Summit, Ill.

Muds, Drilling

Open up deep oil reservoirs.
(176D)

... Oil-well drilling fluids containing nonionic surfactants (compared with conventional drilling muds) permit close control of flow properties, faster penetration rates and savings in rig

time through reduction in hole damage and stuck pipe; resist solidification at temperatures above 300 F. in wells deeper than 15,000 ft.—Socony Mobil Oil Co., Inc., New York, N. Y.

Panel, Plastic

Okayed as fire-retardant
material for construction.
(176E)

... Fire-Snuf fibrous glass-reinforced plastic paneling has been approved by Factory Mutual Laboratories as fire retardant. (It also has Underwriters' Laboratories approval.) Though combustible under direct flame, it resists

flame transmission at 1,200 F. Special qualities are result of controlled processing of Hetron, a type of fire-resistant polyester resin, incorporated in the panel.—Reoslite Corp., Zelienople, Pa.

Putty, Repair

Corrects surface flaws in
machined castings.
(176F)

... Unlike conventional repair procedures used in correcting surface imperfections in metal castings, Metal-set A2 is inexpensive, cures at room temperature, doesn't shrink, machines perfectly to a surface identical to the

casting, is easy to mix and apply. It's put to work as soon as a sufficient number of castings—found defective after machining—has accumulated.—Smooth-On Mfg. Co., Jersey City, N. J.

Remover, Paint

Nonflammable. (176G)

... LPO (Lifts Paint Off) is a nonflammable remover for Epon- and epoxy-based paints. It blisters paints off surfaces—often in less than five minutes—without damage to underly-

ing wood or metal. Two forms are available: one, a standard heavy-bodied material; the other, an unthickened material.—RPO Chemical Corp., Hazel Park, Mich.

Sealants, Fluorocarbon

Used in filleting, caulking, gasketing material. (177A)

... Fluorocarbon sealants, known as Flurans, are completely stable, plasticized fluorocarbon resins plus chemically inert fillers. They resist fuming nitric and other highly oxidizing acids, salts; and are non-volatile, non-flammable, non-toxic, contain no sol-

vents. Temperature resistance of fused Fluran is 225-275 F. Three sealants are Fluran J-10 (hard, rubbery), Fluran J-20 (moderately soft) and Fluran J-30 (soft).—*Chemical Process Equipment Div., U. S. Stoneware Co., Akron 9, Ohio.*

Sealer, Epoxy-Rubber

Cuts production time for strain gages. (177B)

... Epoxy-rubber alloy, Epoxylite 222, is virtually impervious to water and moisture, develops excellent adhesion to variety of surfaces—metals, nylon,

vinyl, Teflon insulations used on connective wiring. It's now being used in guided missile work.—*Epoxylite Corp., Montebello, Calif.*

Solvents, Nonflammable

Remove oil, grease, dirt. (177C)

... Nonflammable solvents, marketed under Freon trademark, bite into and remove oil, grease, dirt without harming delicate metal parts or electrical insulation. Three types available are

Freon MF (boiling point of 75 F.), Freon BF (boiling point of 199 F.), Freon TF (boiling point of 118 F.).—*E. I. du Pont de Nemours & Co., Wilmington 98, Del.*

• Organic Chemicals**Additive, Cement**

Ups strength of conventional ready-mix. (177D)

... Placewel is a water-reducing, air-entraining agent which imparts strength to conventional ready-mix cement. It is a liquid composed of

amine salts of complex alkyl and aryl hydrocarbons plus condensation products of unknown composition.—*Johns-Manville Corp., New York, N. Y.*

Alcohol, Color-Stable

Emollient, super-fatting agent. (177E)

... Adol 32 is a straight-chain, unsaturated, monohydric alcohol (essentially oleyl) with low viscosity and high chemical reactivity. It's non-corrosive; soluble in a variety of solvents; miscible with fats, fatty acids,

petroleum oils and waxes. Possible applications: chemical intermediates, surfactants, germicides, resins, textiles, lube oil additives.—*Chemical Products Div., Archer-Daniels-Midland Co., Cleveland 2, Ohio.*

Alkanolamine

Has six reactive centers. (177F)

... Monohydroxyethyltri-hydroxypropylethylenediamine is available to research and production chemists for use as an intermediate in synthesis of insecticides, plasticizers, surfactants, etc. A water-soluble compound, it possesses basicity, solubility, volatility

and other properties comparable to aminohydroxy compounds of similar structure. Presence of both primary and secondary hydroxy groups creates considerable reaction selectivity.—*Visco Products Co., Inc., Houston 5, Tex.*

Alpha Olefin

Has variety of uses. (177G)

... A highly reactive compound—mixture of 1-hexadecene and 1-octadecene—is commercially available for use in chemical synthesis, resins, petroleum additives, textile processing

aids, surfactants, polymers. Called Adecene 3877A, it is colorless liquid at room temperature, soluble in most organic solvents.—*Archer-Daniels-Midland Co., Minneapolis, Minn.*

Ambergris, Synthetic

Stronger, cheaper than natural odor. (177H)

... Ambropur is a thick yellowish oil which duplicates the scent of ambergris in all respects but one—its strength, and consequently its effect, is far superior to the natural odor. One drop of 0.1% alcoholic solution of Ambropur on a blotter persists almost

completely after 5 days despite strong dilution while a drop of 5% ambergris tincture disappears entirely in the same period. Two other products related to genuine ambergris are Ambrox and Ambron.—*Dragoco, New York, N. Y.*

Amines, Tertiary

Have wide range of uses. (177I)

... Cyclic tertiary amines of high molecular weight (imidazolines) are being marketed under the tradename Nalcamine. Compounds can be used

in emulsifiers, demulsifiers, dispersants, wetting agents, plasticizers, corrosion inhibitors.—*National Aluminates Corp., Chicago 38, Ill.*

ORGANIC CHEMICALS, cont.

Anabolic Drug

Rebuilds human tissue.
(178A)

... Nilevar is expected to contribute to the rebuilding of human tissue in many diseases and surgical conditions. Clinical work shows that the new drug assists both in patient recovery follow-

ing major surgery and in preparation of patients for surgery when they aren't physically fit to undergo operations.—*G. D. Searle & Co., Chicago 80, Ill.*

Anti-TB Drug

Overcomes immunity of TB germs to isonicotinic hydrazides.
(178B)

... Nicotoben, a combination of isonicotinic acid hydrazide with isonicotinic aldehyde thiosemicarbazone at a ratio of four to one, overcomes immunity which tuberculosis germs have developed against isonicotinic acid hy-

drazides. Nicotoben is a German-developed drug and can be used as base product for any chemico-therapeutical treatment of tuberculosis.—*Farbenfabriken Bayer AG, Leverkusen, Germany.*

Antioxidant

For petroleum products, rubber, food, plastics.
(178C)

... An alkylated cresol in two grades, AC-1 (technical) and AC-3 (food), serves as an antioxidant in aircraft fuel, tires, food wrappers, insecticides. AC-1 inhibits formation of gums and peroxides in high-octane gasoline; prevents sludge formation in motor and

lube oils; protects polystyrene, vinyl films and polyethylene from embrittlement and discoloration. AC-3 minimizes rancidity of oily foods like candy and crackers, when used in boxes and wrappings.—*Catalin Corp. of America, New York, N. Y.*

Behenic Acid

Stabilizes emulsions.
(178D)

... Behenic acid, saturated C-22 chain length fatty acid is longest straight-chain fatty acid commercially available from natural fats or fatty oils. It can be esterified with fatty alcohols

to produce high-melting-point waxes. It's ideal for soaps, lotions, cosmetics, lubes, esters, stabilizers.—*Archer-Daniels-Midland Co., Minneapolis, Minn.*

Beta Sitosterol

High purity.
(178E)

... Highly pure beta sitosterol, which has been finding a growing market in treatment of arteriosclerosis (hard-

ening of the arteries), is being produced in commercial quantities.—*Swift & Co., Hammond, Ind.*

Casein

Biologically stable.
(178F)

... Biologically stable casein, containing a built-in preservative which can't be bleached out of the product or extracted by an emulsified oil phase, resists microbial spoilage and insect

infestation. It can therefore be used as a binder or dispersing agent for pigments without having to consider spoilage problems.—*Chemical Div., Borden Co., New York 17, N. Y.*

Castor Oil, Hydrogenated

Has less than 10 ppm. of heavy metal.
(178G)

... Because of its low heavy metal content, Primawax—flaked form of hydrogenated castor oil—has value as a plasticizer in cellulose nitrate, vinyl,

rubber; in lube greases and oils where metals catalyze oxidation and deterioration.—*U. S. Cotton Oil Co., Inc., Jersey City, N. J.*

Cycloserine

Anti-TB drug.
(178H)

... Cycloserine has been found effective against cases of tuberculosis which haven't yielded to treatment

with streptomycin, isoniazid and para-amino-salicylic acid (PAS).—*Chas. Pfizer & Co., Brooklyn 3, N. Y.*

Diethylbenzene

Engraver grade.
(178I)

... Improved grade, Engraver Grade, of diethylbenzene overcomes objections to product's odor in the etching bath. Used in conjunction with HNO₃ in etching of magnesium in photoen-

graving, new improved grade has passed tests established by American Newspaper Publishers Assn. Research Institute.—*Koppers Co., Pittsburgh 19, Pa.*

Diethyl Toluamide

"Best all-purpose insecticide so far developed."
(178J)

... Following Dept. of Agriculture's release (for commercial use) of diethyl toluamide, all-purpose insect repellent, Montrose Chemical Co. is offering high-concentration meta isomer of the toluamide to formulators of insect repellent lotions and similar preparations. DET can be

applied directly to the skin or clothing and protects user against mosquitoes, ticks, chiggers, fleas and biting flies for up to 8 hr. Meta isomer is most resistant to "wipe off" and gives longer protection than other isomers of DET.—*Montrose Chemical Co., Newark, N. J.*

✓ Code numbers for R.S. Postcard (inside back cover)

Dimethylhydrazine

Unsymmetrical. (179A)

... Unsymmetrical dimethylhydrazine, a strong reducing agent used as an aviation fuel, oxygen scavenger

and anti-skinning agent in paints, is commercially available.—*Olin Mathieson Chemical Corp., New York, N. Y.*

Dipentadiene

Highly pure. (179B)

... New commercial source of 95% pure dipentadiene may add to present major applications as a raw material

for making insecticides, printing inks, resins, drying oils.—*Enjay Co., New York, N. Y.*

Ethyl Chloride

Nonflammable. (179C)

... Fluor-Ethyl is a solution of ethyl chloride in dichlorotetra-fluorethane. Because of its ability to produce rapid refrigeration and anesthesia of the

skin, solution should find widespread use in "painless" intramuscular injections.—*Gebauer Chemical Co., Cleveland, Ohio.*

Fatty Acids

Tall-oil based. (179D)

... Tall oil monobasic fatty acids, under Pamak tradename, are being offered to manufacturers as modifiers

for resins and synthetic coating formulations.—*Hercules Powder Co., Wilmington 99, Del.*

Fluorine Compounds

Range of products boast great chemical stability. (179E)

... Chemistry department of Birmingham University (England) has been able to substitute fluorine for hydrogen in benzene. Resulting fluorobenzene made it possible to repeat almost all coal tar chemistry and, in the process, to produce new substances with possible outstanding character-

istics. Chief attraction of compounds is great chemical stability. Possible end uses of compounds include relatively nonflammable materials such as fibers for textile, lubricants and plastics of great strength and durability.—*Birmingham University, Birmingham, England.*

Isopropylbiphenyl

Coolant-moderator for nuclear reactors. (179F)

... Isopropylbiphenyl, newest commercial derivative of biphenyl, is available in pilot plant quantities. Liquid is said to have important economic advantages as coolant-moderator for nuclear reactors. It has been

successfully used in a test "loop" in Brookhaven National Laboratories' nuclear reactor pile at Upton, N. Y. Compound has flash point of 139 C., fire point of 152 C.—*Monsanto Chemical Co., St. Louis 4, Mo.*

Levulinic Acid

A potentially low-cost chemical intermediate. (179G)

... Levulinic acid is available for distribution in drum quantities from a pilot plant operation in Omaha, Neb. It has a wide potential market as an inexpensive chemical intermediate for a large number of synthetic organic

chemicals, including synthetic resins and solvents. Acid is simplest member of gamma-keto carboxylic acids. It reacts in some instances as a carboxylic acid and in others as a ketone.—*Quaker Oats Co., Chicago, Ill.*

Lysine

Hydrochloride salt free from D-lysine. (179H)

... Lysine, one of eight amino acids essential to human nutrition, is commercially available as L-lysine monohydrochloride. Product, made via fermentation process, is white crystal-

line material free from D-lysine (the isomer not used by body) and with a guaranteed potency of not less than 98%.—*Chas Pfizer & Co., Brooklyn 6, N. Y.*

Menthane Diamine

Promises use in epoxy and polyurethane manufacture. (179I)

... Menthane diamine is expected to prove useful as an epoxy resin curing agent and a raw material for polyurethane manufacturer after conversion to the diisocyanate. Com-

pound will also undergo most reactions typical of amine group. It's available in pilot-plant quantities at development price of \$2/lb.—*Rohm & Haas Co., Philadelphia 5, Pa.*

Methallyl Chloride

Two reactive centers in molecule suggest intermediate use. (179J)

... Methallyl chloride can be self-polymerized or copolymerized with a variety of reactive monomers. Methallyl monomers show enhanced reactivity as co-monomers in free radical polymerization. Ease with which reactions can be initiated at either the molecule's chlorine atom or double

bond while retaining reactive possibilities of the other center makes compound versatile building block for the organic chemist. Chloride is commercially available and is expected to find use in resin and plastics field.—*Food Machinery & Chemical Corp. New York, N. Y.*

ORGANIC CHEMICALS, *cont.*

3-Methoxy Butanol

Aimed at lacquer industry. (180A)

... 3-methoxy butanol offers to lacquer industry slow evaporating rate, high solvent power and high diluent tolerance. For heavy-duty brake fluids, it's an excellent coupling agent.

It's also an intermediate in production of phthalate and phosphate plasticizers, urea- and melamine-formaldehyde resins.—*Celanese Corp. of America, New York, N. Y.*

Methyl Butynol

Stable, but has reactive triple bond. (180B)

... Methyl butynol, a tertiary acetylenic alcohol is about to move into commercial production for the first time in the U. S. Both the butynol and pentynol (also to be produced) retain triple bond of parent acetylene, but are themselves completely stable and therefore present no handling and storage problems. Both butynol and

pentynol are used as starting materials in preparation of flavors, perfumes, pharmaceuticals, specialty monomers. Butynol also has direct uses of its own—as an acid corrosion inhibitor, scavenger of HCl in chlorinated solvents, brightener in metal plating.—*Air Reduction Chemical Co., New York, N. Y.*

Penicillin

Chemically synthesized. (180C)

... Chemical synthesis of penicillin, achieved at MIT, will not be cheap enough to compete with established fermentation process. But it has

made it possible to test ten synthetic penicillin analogs.—*Massachusetts Institute of Technology, Cambridge, Mass.*

PF₅ Source

Fluorophosphate yields fluoride resembling BF₃. (180D)

... Phosfluorogen A is a diazonium hexafluorophosphate which is stable at ordinary temperatures and decomposes at 150 C. to yield two gases—PF₅ and N₂—and a liquid aryl fluoride. Importance of the new PF₅ source is tied in with some unpublished observations on PF₅. Like BF₃,

the pentafluoride is a Friedel-Crafts catalyst, but much milder in its action. Unlike BF₃, it forms stable compounds with amines, but not with ethers. Thus it can be readily separated from ethyl ether and related oxygen derivatives.—*Research Dept., Ozark-Mahoning Co., Tulsa, Okla.*

Piperazine

In eutectic mixture. (180E)

... Piperazine, ordinarily a high melting solid that's quite hygroscopic and requires great care in handling, is available as a eutectic mixture con-

taining about 40% water. Mixture melts at about 95 F.—*Carbide & Carbon Chemicals Co., New York, N. Y.*

Polyglycols

Three new series. (180F)

... Polyeppichlorohydrin, polystyrene glycol and polybutylene glycol hold promise as intermediates in production of polyurethanes, surfactants,

paints, coatings. Epichlorohydrin is designated as Polyglycol 166; polystyrene glycol, as Polyglycol 174.—*Dow Chemical Co., Midland, Mich.*

For More Information . . .

For more information on any item, simply write its code number on one of the Reader Service postcards inside the back cover of this issue. Mail it and information comes to you direct from the manufacturer. You can also write directly to the producer at

the address given. Or you can refer to the August 1956-August 1957 issues of CE by using the monthly index in the New Chemicals department or the annual index in December. For speed and convenience use Reader Service Postcards.

Sesquiterpene

Three fractions in commercial quantities. (181A)

... Three sesquiterpene fractions now commercially available are: top grade, 90% pure beta caryophyllene; second grade, 75-80% pure; third grade, only

of interest where chemical purity or good organoleptic property is not necessarily required.—*Glidden Co., Cleveland, Ohio.*

Silanes

Organofunctional, undergo classic organic reactions. (181B)

... In contrast with other inert silicones, a class of monomeric, silicon-containing chemical intermediates can be reacted with organic chemicals to yield a host of industrially important products (e.g., finishing agents, pharmaceuticals, pesticides, synthetic resins, cosmetics). Key to organic reactivity is the addition of functional groups to conventional organosilanes. As a result of these reactions, prop-

erties like solubility, compatibility, volatility in materials being worked with can be modified. Four organofunctional silanes already available for evaluation are γ -aminopropyltriethoxy silane, β -aminobutylmethyldiethoxysilane, β -carbethoxyethyltriethoxysilane, δ -carbethoxyethylmethyldiethoxysilane. — *Silcones Div., Union Carbide and Carbon Corp., New York 17, N. Y.*

Sulfonic Acids

Derived from palmitic and stearic acids. (181C)

... Both sulfo-stearic and alpha sulfo-palmitic acids contain a strongly ionized sulfonic acid group and one carboxyl group, making possible a variety of normal and mixed deriva-

tives which have promise in detergents, greases, ore flotation, butadienestyrene polymerization, fuel or lube oils, chemical intermediates.—*Armour & Co., Chicago 9, Ill.*

Sulfonyl Chloride

Trichloromethane derivative. (181D)

... Trichloromethanesulfonyl chloride accelerates ignition, improves lubricating qualities of diesel oil fuels, is a vulcanizing agent for natural rubber

in presence of elemental sulfur. Compound is available in research quantities.—*Stauffer Chemical Co., New York, N. Y.*

Terpene Oxides

Suggested as chemical intermediates. (181E)

... Two epoxy compounds—dipentene monoxide and alpha-pinene oxide—are available in laboratory quantities for test purposes. Both are suggested for use as intermediates in organic synthesis; as solvents; as plasticizers for resins such as polyvinyl chloride; and

in manufacture of perfumes, flavorings, pharmaceuticals, protective coatings, insecticides, bactericides, lubricant additives, adhesives and flotation agents.—*Becco Chemical Div., Food Machinery & Chemical Corp., Buffalo, N. Y.*

Terpene Peroxides

Use in polymerization processes covered in new patents. (181F)

... Saturated terpene peroxides and their use in polymerization processes are covered in patents assigned to the Secretary of Agriculture. Claims in U. S. 2,775,578 cover use of para-

menthane peroxide as polymerization catalyst in production of synthetic rubber.—*Southern Regional Research Laboratory, U. S. Dept. of Agriculture, New Orleans, La.*

Tetracycline Salt

Antibiotic. (181G)

... Blood levels from a single oral dose of Tetrex, a new salt of tetracycline, are almost double those from

an equal dose of tetracycline hydrochloride.—*Bristol Laboratories Inc., New York, N. Y.*

Thickener, Gasoline

Aluminum soap of isooctanoic acid. (181H)

... Aluminum soap of isooctanoic acid is thickener for jelling gasoline—source of flame for fire bombs, flame throwers. Soap is derived from an aluminum compound and domestic

petroleum product. Two companies have contracts for the soap's production.—*Nuodex Products Co., Inc., Newark, N. J.; Wites Chemical Co., New York, N. Y.*

Triallyl Citrate

In 4-oz. samples. (181I)

... Triallyl citrate is particularly useful in plastics industry as cross-linking agent for polyester resins. A highly unsaturated reactive monomer,

it can be polymerized to hard, brittle, thermoset polymers.—*Chemical Sales Div., Chas. Pfizer & Co., Inc., Brooklyn 6, N. Y.*

Trimethylolpropane

Available in 4-oz. samples. (181J)

... Pure flake trimethylolpropane at a new low price—43¢/lb. (carload)—makes for economic use of this aldol in production of polyurethanes, alkyd

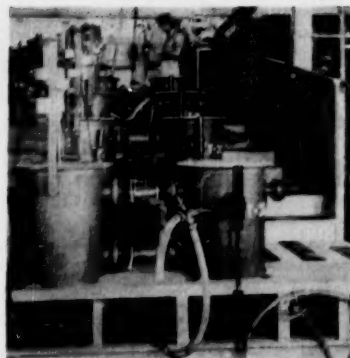
resins, synthetic drying oils, plasticizers, surfactants and polyesters.—*Celanese Corp. of America, New York 16, N. Y.*

ORGANIC CHEMICALS, *cont.*

Uranium Extractants

Alkyl phosphate esters
are selective solvents.
(182A)

... Effectiveness of two alkyl phosphate esters—Dowsol 12 and Dowsol 17—as selective solvents for uranium extraction creates a better industry-wide competitive position for extraction method vs. ion exchange. Dowsol 12, monododecyl phosphoric acid (DDPA) is available on commercial basis; Dowsol 17, heptadecyl phosphoric acid, on development basis. Both are offered not only for uranium processing but also for other metal processing like recovery of vanadium, thorium and other base metals. Compared to older solvents, both offer higher uranium coefficients, lower water solubility. Dowsol 17 is believed to excel even Dowsol 12. It can be stripped by use of carbonate whereas hydrochloric acid is recommended for



stripping uranium from Dowsol 12.—
Dow Chemical Co., Midland, Mich.

Vitamin E

Improved dry form.
(182B)

... Vitamin E in improved dry form offers pharmaceutical manufacturers and food processors excellent stability, easier handling, ready dispersion in dry granular mixtures and powdered food supplements. It doesn't melt or

liquefy at processing temperatures to cause sticking and binding in tablet dies. Dry vitamin E acetate powder 25% contains 250 International Units of vitamin E per gram.—*Hoffmann-La Roche Inc., Nutley, N. J.*

• Protective Coatings

Arsonosiloxanes

Combine properties of
silicones and arsenicals.
(182C)

... Arsonosiloxanes, made from organic chlorosiloxanes and organic arsenic acids, are water repellent (like silicones); fungicides and pesticides (like arsenicals). They're expected to find use in damp locations or humid

atmospheres to protect various materials from deterioration due to moisture and insect attack.—*American Smelting & Refining Co., New York 5, N. Y.; E. F. Houghton & Co., Philadelphia 33, Pa.*

Binder, Latex

Withstands temperature
extremes.
(182D)

... Lytron 680 is a latex binder which may be formulated with latex paints for a broad range of exterior and interior uses. It has exceptionally good weatherability; excellent film-forming

characteristics; dries quickly; exhibits good adhesion to a variety of surfaces; resists chalking, blistering, mildew.—*Monsanto Chemical Co., Springfield, Mass.*

Coating, Anti-Skid

Solves skidding problems
of containers.
(182E)

... Applied, via spray nozzles, to bottom of cases as they leave the case sealer, Resyn 32-3415 coating dries almost instantaneously in an invisible film

which provides a non-skid surface.—*National Adhesives Div., National Starch Products Inc., New York 16, N. Y.*

Coating, Antistatic

Teflon-based.
(182F)

... Gencote 108 is a Teflon-based, antistatic coating retaining all of Teflon's properties but one—electrical insulation. Instead, 108 is an electrical conductor, making it possible to produce an anti-stick, dry-lubricated,

chemically inert surface which is also antistatic. 108 has been used in chemical and drug cone blenders, conveying equipment, explosives handling.—*General Plastics Corp., Paterson, N. J.*

Coating, Epoxy-Based

Protects metal, wood,
masonry surfaces.
(182G)

... Poxycote protects surfaces against corrosive fumes, moisture and drip-page of almost all chemicals. Its insoluble, inconvertible and non-porous film has superior resistance to impact and abrasion; retains excellent ad-

hesion even during extreme temperature changes. Depending on surface to be coated, one gallon will cover 300-1,000 sq. ft. at a cost of 2¢-5¢ sq. ft.—*National Coating Products, Inc., New York 11, N. Y.*



Purity

TOLUOL-XYLOL Sinclair produces and *delivers* the purest aromatics available. Sinclair is proud of this reputation and maintains it through care and high standards in manufacturing—insures it by use of special transportation equipment provided exclusively for aromatics.

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New Chemicals & Raw Materials

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PROTECTIVE COATINGS, cont.

Coating, Vinyl-Based

Eliminates odor, need for surface preparation.

(184A)

... Like other vinyl-based coatings, Ucilon 1400 provides excellent corrosion resistance. But it also eliminates strong odors and need for meticulous surface preparation. Coating resists acid, alkalis, water, other

causes of early paint failure. Mild odor and high flash point permit application without interference with plant routines. 1400 is self-priming, brushes out like oil paint.—*Metal & Thermit Corp., Rahway, N. J.*

Emulsion, PVA

Resists water. (184B)

... Elvacet 34-1100 is a polyvinyl acetate emulsion with excellent water resistance. Designed primarily for use as a vehicle in water-base paints, its stability and water resistance offer

advantages in either exterior masonry paints or interior paints. Price is comparable to other homopolymers.—*E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del.*

Finish, Appliance

Most durable coating for home appliances. (184C)

... MD enamel is much harder than currently used enamels, more resistant to marring and chipping, unaffected by prolonged exposure to high-temperature soap solutions. Based on new

polymer, finish is not yet in commercial production but is being tested on production finishing lines.—*E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del.*

Finish, Auto

Combines lacquer speed, enamel gloss. (184D)

... Aside from rapid drying speed, Exlon enamel can be applied rapidly (2 coats in 20 minutes); air dries; has no odor, sticky overspray or spray

dust. It's also wrinkle-proof—levels off to a mar-free finish sans use of anti-wrinkling additives.—*Sherwin-Williams Co., Cleveland 1, Ohio.*

Insulation, Epoxy

Withstands extreme temperatures sans cracking. (184E)

... Scotchcast epoxy resin No. CRP 235's outstanding thermal and mechanical shock are the result of flexibility through molecular modification rather than plasticizer action. Thermal shock: at -50 C., aluminum pegs set in rim of CRP 235 are so cold

that they collect moisture, yet resin remains unaffected. Mechanical shock: $\frac{1}{2}$ -in. slabs of cured resin absorb 46 $\frac{1}{2}$ ft.-lb. impact of falling ball test, using a 4-in. steel ball.—*Minnesota Mining and Mfg. Co., St. Paul 6, Minn.*

Insulation, Void-Free

Silicone material provides greater heat resistance than other resins. (184F)

... Silicone without solvent is the basis of a high-temperature, high-voltage electrical insulation. High voltage: By eliminating solvent formerly necessary in other heat-resistant resins (to make them fluid enough for application), it's possible to produce a void-free insulation. High temperature: Solventless resin withstands temperatures which melt lead and cause conventional insulating resin to smolder. Because it tolerates high temperatures, smaller parts (which normally generate excessive heats) can be substituted in electrical components. Thus, lighter equipment can be used.—*Westinghouse Electric Corp., Pittsburgh, Pa.; Dow Corning Corp., Midland, Mich.*



Latex, Paint

Fortified styrene-butadiene copolymer has enhanced properties. (184G)

... Dylex latex K-34 owes its increased pigment binding strength, improved adhesion, superior mechanical and chemical stability to its chemical composition and fine particle size. Paints prepared with K-34 can be formulated with water-dispersible pigments and low-cost extenders; retain their pigment binding strengths even with high pigment volume concentration.—*Koppers Co., Inc., Pittsburgh 19, Pa.*

➔ Want more information on any of these items? Just write its code number on one of the postcards inside the back cover, then mail it to us. It's that easy now.

PROTECTIVE COATINGS, *cont.***Modifier, Alkyd**

Improves coatings.
(185A)

These are your Reader Service key numbers
... Benzoic-toluic, a mixture of 85% benzoic acid and 15% *m*-toluic acid, is a modifier of alkyd resins which improves properties of paints, enamels and other surface coatings.—*Oronite Chemical Co., San Francisco, Calif.*

Neoprene, Liquid

Protects wood, metal, glass, masonry, fabric.
(185B)

... Liquid neoprene, called NeoGuard, bonds firmly to almost any clean surface and hardens into a tough, abrasion-resistant rubber film. It's not harmed by changes in climate or exposure to sunlight, nor damaged by

oils and greases. Application is easy—with brush, roller or spray. A single coat is said to give a protective film equal in thickness to 6-10 coats of ordinary paint.—*Marine Guard Corp., Edgemont, Pa.*

Organosol Formulation

Makes harder, more chemical resistant coating.
(185C)

... Formulation (35 parts plasticizer, 100 parts resin) based on Plivoc AO vinyl dispersion resin affords a harder surface with less tack and greater chemical resistance than is possible with comparable formulations with higher plasticization. Coating resists

acids, bases, metallic salts, moisture, corrosive fumes. Formulation provides flow characteristics specifically designed for metal applications and has excellent viscosity and dispersion stability.—*Goodyear Tire & Rubber Co., Akron 16, Ohio.*

Paint, Alkyd

High gloss.
(185D)

... Because it falls into 90-100 gloss-meter range and because it uses water, rather than solvent thinner, alkyd-oil-based paint lays claim to many of same advantages of Cela-

nese's high-gloss latex paint. One disadvantage of alkyd product, called Synthemul 1504, is that the white yellows on drying.—*Reichhold Chemicals Inc., White Plains, N. Y.*

Paint, Aluminum

Withstands temperatures to 1,700 F.
(185E)

... High-heat aluminum paint, C-I Extra High, is a silicone-based paint which won't blister or burn at temperatures of 1,700 F. It forms a coating

which resists moisture, corrosion, mild acids, alkalis, industrial fumes.—*Chem Industrial Co., Brooklyn 9, Ohio.*

Paint, Automotive

Eliminates drying time between coats.
(185F)

... Quick-drying Dythol is a synthetic enamel that air dries in just 30 minutes, thus allows auto refinishing shops to apply two coats in immediate succession; puts small shops in a better position to compete with

larger shops. Dythol doesn't contain nitrocellulose, nor is it a lacquer. But it's almost as fast as a lacquer in drying rate and much faster than today's synthetic enamels.—*Martin-Senour Paint Co., Chicago, Ill.*

Paint, Latex

Semi-gloss.
(185G)

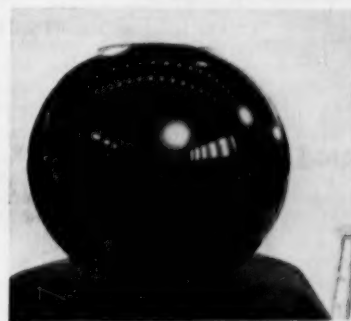
... Semi-gloss, water-thinned latex paint claims gloss meter reading of 58-60; non-yellowing properties for its

white. Type of latex in formulations hasn't been disclosed.—*National Gypsum Co., Buffalo, N. Y.*

Paint, Latex

High gloss, water-thinned.
(185H)

... Credit for high gloss of polyvinyl acetate paint (only high-gloss product of its kind on the market) goes to selection of wetting agents and protective colloids plus production of extremely fine particles of resin of proper molecular weight in emulsion. Like flat latex paints, high gloss paints are characterized by ease and speed of application, absence of objectionable odor, rapid drying, easy brush clean-up, scrubability, absence of fire hazard while being applied.—*Celanese Corp. of America, New York 16, N. Y.*

**Paints, Glossy**

Vinyl toluene and vegetable-based.
(185I)

... Keltrol paints have excellent hardness, high gloss and dry rapidly. Keltrol 1001 is 60% solids in mineral spirits; Keltrol 1013 is 60% solids in xylol. Applications include air drying

or baking industrial enamels; hammer, floor polychromatic finishes; special primers; caulking compounds.—*Spencer Kellogg & Sons, Inc., Buffalo, N. Y.*

PROTECTIVE COATINGS, *cont.*

Paints, Non-Toxic

Bactericidal, fungus-free.
(186A)

... New additives for polyvinyl acetate paints result in two products tradenamed Bacti-cote and Fungi-cote. For process industries like food and pharmaceuticals requiring hygienic conditions, products can replace

frequently-washed high gloss oil paints which occasion high glare and condensation, or disinfectants whose activity is short-lived and sometimes prohibitively toxic.—*Chas. Bowman & Co., New York, N. Y.*

Plastisol, Sprayable

Makes possible gun application of solids content without diluent. (186B)

... Using Unichrome Super 5300 sprayable plastisol, a pore-free, 50-60 mil coat (triple the thickness previously possible) can be successful applied in one layer to large equipment. Super 5300 is based on vinyl resins and is resistant to corrosive

action of strong acids, concentrated caustic and salt solutions. It forms a tough, flexible film which absorbs impact, withstands abrasion, has desirable acoustical and electrical insulating properties.—*Metal & Thermite Corp., Rahway, N. J.*

Silicone, Fluid

Fills film scratches.
(186C)

... Basis of a new process which fills film scratches, makes for better 35-mm. enlargements, is a silicone liquid called Refractasil and a special negative holder, Refractamatic 35. Refractasil has same index of refraction as film base. Thus scratches can be filled without bending light rays at film-liquid interface. It removes oily fingerprints, and in special film holder, gets rid of dust. In combination, fluid and negative holder make for easier handling of 35-mm. film. Any handling procedure that doesn't actually gouge the film's silver layer can be



tolerated.—*General Electric Co., Research Laboratory, Schenectady 5, N. Y.*

Silicone, Leather-Treating

Saves money, offers safety in work shoes. (186D)

... Sylflex treatment of work shoes imparts lasting water repellency without clogging pores through which leather "breathes." Man wearing Sylflex-treated leather can walk

through water and acid solutions without getting his feet wet. Sylflex also blocks water so that leather shoes don't crack or curl after wetting.—*Dow Corning Corp., Midland, Mich.*

Silicones, Solventless

Forms void-free insulations.
(186E)

... R-7501 and R-7521 are two solventless silicone insulating resins which are 100% silicone materials, pour freely without solvents. They

cure to form void-free, high-temperature impregnations or encapsulations for electric or electronic equipment.—*Dow Corning Corp., Midland, Mich.*

Thickening Agent

For latex paints. (186F)

... High viscosity thickening agent, Cellosize hydroxyethyl cellulose WP-4400 offers these performance advantages in latex paints: excellent scrub resistance; rapid paint processing and pinhole prevention; excellent pigment

dispersion; good brushability, flow out; enhanced mechanical freeze-thaw and viscosity stability. Thickener goes into solution at room temperatures.—*Carbide & Carbon Chemicals Co., New York 17, N. Y.*

Thickening Agent

For paints, plastics, protective finishes. (186G)

... Imperviousness to effects of impurities (water, phenols, polar solvents, basic or acidic components) plus uniform viscosity over long aging periods give Viscotrol-A the edge over many other thickening agents. White organic powder also increases and controls viscosity; controls sagging

and flow; controls penetration; prevents pigment settling; won't affect drying rate, adhesion, scratch resistance, color, gloss of finishes. Potential applications: paints, caulking compounds, inks, cosmetics and pharmaceuticals.—*Ferro Corp., Cleveland 5, Ohio.*

Thixotropic Agent

Inhibits crawling, sag, draining in polyesters.
(186H)

... Thixcin E effectively controls flow properties of polyesters designed for coating, impregnating and other applications. Addition of as little as 0.2%, based on polyester resin, com-

pletely eliminates "crawling" or "cratering" action frequently observed with polyesters. It also imparts outstanding sag resistance.—*Baker Castor Oil Co., New York, N. Y.*

Varnish, Insulating

Eliminates need for silicone varnishes in Class B motors. (187A)

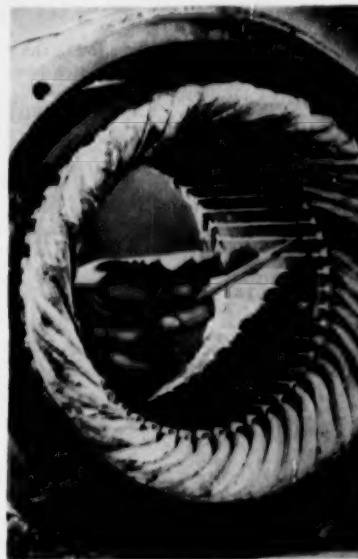
... Polyester-base insulating varnish permits manufacture of Class B electric motors without use of expensive silicone varnishes and enamels. Called Isonel, varnish was developed to provide heat resistance similar to class

B wire enamels, handling and curing characteristics adapted to manufacturing cycles and curing temperatures currently used by electrical manufacturers.—*Schenectady Varnish Co., Inc., Schenectady, N. Y.*

Varnish, Silicone

Retains insulation resistance, bond strength, water repellency under severe tests. (187B)

... After 60,173 hr. at 464 F., equivalent of 360 yr. at standard Class H hottest-spot (356 F.) temperature or 5,787 yr. at conventional Class A (220 F.) limits, silicone varnish still has good bond strength, insulation resistance and water repellency. Test program, which originally involved eight motors, has yet to achieve "maximum life" objective. Causes for breakdown of seven motors to date have been irrelevant. One motor still in operation has already run longer at 464 F. than a Class A motor would be expected to run at 230 F. and is still going strong. Tests thus far have provided understanding that failure mechanism of silicone insulation is far different than that of organic materials; American Inst. of Electrical Engineers' recognition of silicone insulation as Class H ("High temperature"); finding the minimum life or the point at which crazing first appeared on the silicone varnish surface.—*Dow Corning Corp., Midland, Mich.*

**Vehicle, Paint**

Disperses drying oils in water. (187C)

... Arolon 110, a water-emulsion paint vehicle made from vegetable oils, successfully disperses chemically reacted drying oils in water. Advantages include easy application; higher

resistance to water, when drying, than other water emulsion paints; quick drying; little or no odor; good adhesion to glossy surfaces.—*Archer-Daniels-Midland Co., Minneapolis 2, Minn.*

• Pulp & Paper Chemicals**Coating, Paper**

Fortified styrene-butadiene copolymer latex. (187D)

... Dylex latex K-52 owes much of its improved properties to its fine particle size (as compared with other high-styrene types of latexes). K-52 offers to paper makers: excellent compatibility with adhesives used in paper industry; can be used in paper

coating either alone or in combination with natural adhesives and clays to improve printability and ease coating problems; produces coating colors with good adhesion and flow properties; good pigment binding strength.—*Koppers Co., Inc., Pittsburgh 19, Pa.*

Defoamers

Developed for paper industry. (187E)

... Witco Defoamer 2A and Defoamer 3 are two liquid, nonionic surfactants which prevent foam formation in white water returning to the feed box

of paper making machines. Result: Finished paper is free from objectionable air voids.—*Witco Chemical Co., New York 17, N. Y.*

Resin, Impregnating

Fireproofs paper. (187F)

... Fireproof paper that's self-extinguishing is possible using Synco 85 impregnating resin. On continued exposure to direct flame, papers char at point of contact; there's no "after

glow" or "punking". Potential uses for Synco-impregnated paper: air filters, insulation, structural materials (e.g., overlays and laminates). —*Synco Resins, Inc., Bethel, Conn.*

FOR MORE INFORMATION on any item in this section, write its code number on one of the Reader Service postcards (inside back cover) and mail. It's fast and easy.

• Resins & Plastics

Acrylic, Stretched

Craze resistant. (188A)

... Stretching improves toughness of acrylic plastic sheets enough to make them usable for aircraft glazing without lamination formerly required. Molecular orientation created by mul-

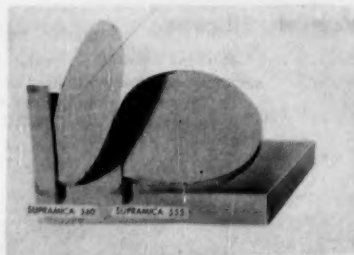
ti-axial stretching greatly increases resistance to crazing. Commercial application has recently begun based on test results.—*National Bureau of Standards, Washington 25, D. C.*

Ceramoplastic

Resists higher heats than older synthetic-mica-containing compounds.

(188B)

... Supramica 560 is a moldable ceramoplastic insulator which will withstand continuous operating temperature in excess of 932 F. Short-time operating temperatures will be about 1,200 F., depending on mass and configuration of part. Product includes synthetic mica and retains electrical properties common to manufacturer's older synthetic-mica-containing ceramoplastics. And it features considerably lower density in addition to increased thermal endurance. Compound can be precision-molded to very close tolerances and is dimensionally



stable during and after fabrication.—*Mycalex Corp., Clifton, N. J.*

Colorant, Plastics

Red pigment fast to heat and light. (188C)

... Irgalite Red HGL claims outstanding fastness to light and heat even when used in low concentrations needed to produce tint transparencies.

This organic red is especially useful in coloring polyvinyl chloride.—*Geigy Co., Rhodes, Middleton-near-Manchester, England.*

Cresylics

New plant output promises more reliable supply. (188D)

... New Pitt-Consol Chemical plant in Newark, N. J., with expected 20-million lb./yr. output of phenols, cresols and cresylic acids comes close to meeting amount for which domestic users have had to go to skittishy priced imports during recent years. Superior process control offered by continuous operations means better

uniformity as to basic product composition and purity levels than older batch processes are able to guarantee. Troublesome impurities such as sulfur, neutral oil and tar bases have been reduced to the point where they are no longer a factor in consumer processing.—*Pitt-Consol Chemical Co., Newark, N. J.*

Curing Agent

Easier to handle in curing epoxies. (188E)

... Methyl Nadic anhydride is third in a series of dicarboxylic acid anhydrides which make for greater ease of handling epoxy resins during curing. Like its predecessors (dodecenyl succinic anhydride and hexahydrophthalic anhydride), newest anhydride may

be easily mixed with liquid epoxies at or slightly above room temperature or with solid epoxies heated only slightly above their melting points and stirred into the anhydrides.—*National Aniline Div., Allied Chemical & Dye Corp., New York, N. Y.*

Curing Agent

For epoxies. (188F)

... Epoxies cured with Sonite No. 21, an acid anhydride, have heat distortion temperatures up to 400 F., excel-

lent electrical and physical properties and fire resistance.—*Smooth-On Mfg. Co., Jersey City 4, N. J.*

Elastomer, Polyurethane

Superior to natural or other synthetic rubbers. (188G)

... Disogrin is a diisocyanate polyester elastomer of particular value in the hydraulic field and where abrasion is a problem. Properties vary: tensile strength, 5,470-7,230 psi.; abrasion, 22-35 (Buna N is 65); Shore hardness "A", 80-90; resilience, 33-60%; elongation, 540-750%. Diso-

grin is also flame retardant; operates over a wide temperature range; resists aging, high ozone concentration, oil and jet fuels, radioactivity. Elastomer is available in two basic types—compression-injection molded and liquid cast.—*Greer Industries, Inc., Jamaica 30, N. Y.*

Film, Plastic

Combines properties of polyester and polyethylene films. (188H)

... Clear polyester-based film combines strength and oil resistance of polyester films with corrosion resistance and heat-sealable properties of polyethylene films. Film is chemically inert; heat sealable; non-toxic; resists boiling, moisture, gas permeation; resists insect penetration, radiation de-

terioration; has good puncture resistance; tensile strength greater than 15 lb. per inch of width. Priced several times higher than cellophane and most other transparent films, product can package a wide variety of items.—*Minnesota Mining and Mfg. Co., St. Paul 6, Minn.*

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Tetrachloride • Monochlorobenzene • Para-dichlorobenzene
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RESINS & PLASTICS, cont.

Film, Polyester

Heat sealable on both sides. (190A)

... Scotchpak "B" is a durable, non-toxic chemically inert, odor-impervious film which is heat sealable on both sides. Thus it can be formed into tubes. Properties of "B" and its predecessor, "A" demonstrate the performance capabilities of the film: tensile strength—8,700 psi.; elongation at break—270%; burst strength Mullen—25 psi.; temperature stability—from -60 to +240 F.—*Minnesota Mining and Mfg. Co., St. Paul 6, Minn.*



Insulation, Epoxy

Has distortion temperature of 600 F. (190B)

... Epoxylite high-temperature compound claims heat distortion temperatures higher than any recorded for conventional epoxy systems. Thermal

stability studies indicate new formulations fall in the electrical Class B plus and Class H insulation range.—*Epoxylite Corp., El Monte, Calif.*

Metal Substitute

Made from wood veneer and synthetic resin. (190C)

... Steel, bronze and cast material are to be replaced in Rumania by an ersatz material, Lignomet—a composite product containing white beech-tree veneer and synthetic resin. Ma-

terial is said to be less costly than other materials—40-50% cheaper than bronze; 20-30% cheaper than steel or machined cast iron parts.—*Magura Codlei, Zeidem, Rumania.*

Molding Compounds

Exhibit high heat resistance. (190D)

... Cymac 400 and Cymac 201 are two injection molding compounds based on methylstyrene. Cymac 400, based on methylstyrene monomer, offers unusual heat resistance as well as all the desirable properties of polystyrene. Cymac 201, based on methyl-

styrene-acrylonitrile copolymer, offers better toughness, chemical and craze resistance than Cymac 400 plus excellent heat resistance, clarity, luster and wide color range.—*Plastic & Resins Div., American Cyanamid Co., New York 20, N. Y.*

Plastic, Antistatic

Thermosetting. (190E)

... Homalite 141 resists accumulation of static electricity on its surface, thus making it ideal for sensitive in-

struments where static affects instrument's accuracy.—*Homalite Corp., Wilmington 4, Del.*

Plastic, Heat-Resistant

Stable at 550 F. (190F)

... Penton, chlorine-containing polyether, withstands fabrication temperatures as high as 550 F., has tensile strength of 3,000 psi. in boiling water (compared with tensile strength of 6,000 psi. at room temperature).

Penton also exhibits good wear resistance, resistance to hydrolysis in slight alkaline or acid media, low permeability, resistance to sterilization.—*Hercules Powder Co., Wilmington 99, Del.*

Plasticizer

Polyester, easy to process. (190G)

... Unlike other high molecular weight polyester plasticizers, Emery 3049-S doesn't have a high cost, can be processed easily on conventional equipment. It also retains the benefits of the permanence characteristics of its class. 3049-S provides vinyl

compounder with optimum integration properties, outstanding extraction properties, complete compatibility, excellent electrical properties, low volatility, resistance to marring by lacquers.—*Emery Industries, Inc., Cincinnati, Ohio.*

Plasticizer, Polymeric

Combines permanence with low color. (190H)

... A neopentyl-glycol-derived ester, NP-10, is a primary plasticizer with excellent permanence and low color. It resists hydrolysis, remains un-

affected by moisture under severe outdoor weathering; color is less than 100 ppm. (APHA).—*Eastman Chemical Products, Inc., New York 16, N. Y.*

Plasticizer, Primary

Effective as, but cheaper than, n-octyl-n-decyl phthalates. (190I)

... Modified alkyl phthalate imparts low-temperature flexibility in vinyl equivalent to that obtained from n-octyl-n-decyl phthalates. But cost is less. Called PX-313, it offers combination of low-temperature flexibility

and low volatility with processing characteristics which make it useful for vinyl jacket wire, high quality coated fabrics, sheeting and film.—*Pittsburgh Coke & Chemical Co., Pittsburgh, Pa.*



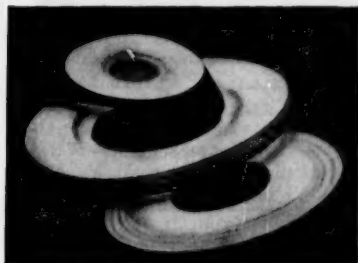
NEWS

Packings and gaskets of Du Pont **TEFLON**[®] resist corrosion, high temperatures... reduce maintenance costs

tetrafluoroethylene resins



PACKINGS OF "TEFLON" tetrafluoroethylene resins provide uniform packing performance and long service life. Solid packings are impervious to liquids and gases. Low frictional coefficient of TEFLON resins reduce torque... increase mechanical efficiency. In addition to the above, impregnated asbestos packings and plastic packings are also available.



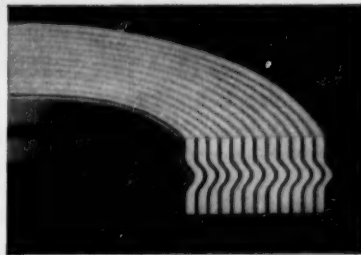
ENVELOPE GASKETS of TEFLON resins consist of a soft filler covered by a jacket of TEFLON resins. They are used for sealing large diameters and where bolting pressures must be limited, as in glass-lined equipment and pipe made from ceramics.

When conventional packing and gasketing materials give you trouble, replace them with gaskets and packings of TEFLON tetrafluoroethylene resins in these "hot spots." Considerable savings from decreased downtime and lower maintenance costs have been experienced by many who have specified a TEFLON resin.

For example, when a pump, worn out from handling silicon tetrachloride at 2000 to 2500 lb./sq. in. was dismantled for servicing, the original packing of a TEFLON resin was still in place. The former packing required servicing every 2 or 3 days. In another case, ring gaskets of a TEFLON resin on standard pipe flanges were exposed to mixtures of nitric and sulfuric acids at 428°F. The gaskets are still giving satisfactory service after 26 months. The previous material lasted one month or less.

TEFLON tetrafluoroethylene resins are inert to nearly all chemicals and solvents in commercial use. Exceptions to this include attack by the alkali metals under certain conditions. At high temperatures and pressures, halogens and certain halogenated chemicals may also affect TEFLON resins.

TEFLON resins have the lowest coefficient of friction of any solid in



SPIRAL-WOUND GASKETS and gaskets made from asbestos and glass cloth impregnated with TEFLON resins are used in high-pressure installations such as pipe joints, reaction kettles, steam couplings, pump bodies, and pressure tanks.

commercial use. For this reason, less torque is needed to turn shafts and stems when packings of TEFLON resins are used. TEFLON resins remain tough over a wide range of temperatures. They can be employed up to 500°F. and display excellent properties at very low temperatures. Water absorption is less than 0.1% (ASTM D570-42). Sticky or viscous materials do not adhere to its waxy surface. TEFLON resins are specified for electrical applications because of their high dielectric strength and extremely low power factor.

Insure the reliability and long life of your process equipment. Specify gaskets and packing of TEFLON resins. Components of TEFLON resins will help cut your maintenance costs and downtime. For more information, fill out and mail coupon.

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TEFLON is Du Pont's registered trademark for its fluorocarbon resins, including the tetrafluoroethylene resins discussed herein. This registered trademark should not be used as an adjective to describe any product, nor should it be used in whole, or in part, as a trademark for a product of another concern.

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RESINS & PLASTICS, *cont.*

Plasticizers

Show promise for processing cellulosic materials. (192A)

... Hyprose SP80 and Hyprin GP25 are two new plasticizers and chemical intermediates. Hyprose SP80—octakis (2-hydroxypropyl) sucrose—is a polyurethane crosslinking agent, plasticizer and surface active agent intermediate. As a crosslinking agent, it may be added after the prepolymer reaction to produce low-density polyurethane foams with high load bearing characteristics and good resiliency. As a plasticizer, it may be used

in such cellulosic materials as paper, cellophane and methyl-cellulose. Fatty acid esters of Hyprose SP80 exhibit surface active properties. Hyprin GP25 is a plasticizer for cellulosic products and shows many of the same advantages as Hyprose SP80. Because of its similarity to glycerine, GP25 may be used in the manufacture of alkyd resins and polyesters.—Dow Chemical Co., Midland, Mich.

Plasticizers, Epoxy

For PVC. (192B)

... Celluflex 21 and Celluflex 23 are two epoxy plasticizers which impart outstanding low-temperature performance and color stability to polyvinyl

chloride and other polymers with reduced plasticizer loss due to volatility.—Celanese Corp. of America, New York 16, N. Y.

Plastics in New Forms

Linear poly, copolymer styrene in extruded sheets. (192C)

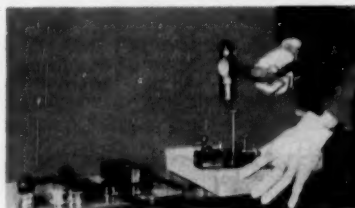
... Extruded linear polyethylene, previously available in calendered film, has excellent resistance to heat distortion, improved rigidity and impact resistance even in thin gages. Prominent uses will most likely be in packaging of both industrial and consumer goods. Extruded copolymer styrene sheet, Campeo S-1029, is available in thicknesses to $\frac{1}{8}$ in., boasts

improved strength and color control over conventional thick sections. S-1029 has outstanding impact strength, even at temperatures as low as -40F. Biggest markets for the new material are expected in applications like machine housings, luggage, automotive panels, liners, seat skirts.—Campeo Div., Chicago Molded Products Corp., Chicago 35, Ill.

Plastics, Polycarbonate

"Tough as nails." (192D)

... Polycarbonate plastics are strong enough to make nails for driving into lumber. They excel older competitive resins and cellulose in tests of impact resistance, tensile strength and resistance to heat distortion. Ultimately, the price of these polycarbonates may fall within the 50¢/lb. range.—General Electric Co., Pittsfield, Mass.



Polyester

Aimed at flexible polyurethane foam. (192E)

... Fomrez 50 is a polyester which produces foams showing a minimum of deterioration and low compression set when exposed to humid aging. It

features a narrow hydroxyl number and viscosity range as well as uniformly low moisture content.—Witco Chemical Co., New York, N. Y.

Polyethers

For polyurethanes. (192F)

... Three polyethers—Pluronic polyol L61 and Tetronic polyols 701 and 904—are distinguished by low cost and

resistance to humidity aging of foams they produce.—Wyandotte Chemicals Corp., Wyandotte, Mich.

Polyethylene, Black

Film and paper coating resin for outdoor use. (192G)

... Alathon 5F polyethylene resin is a medium-density, high quality black formulation, available as a film and paper coating resin for application where resistance to outdoor weathering is important. Products extruded from it are notably free of pinholes and surface defects. Dispersion of carbon black in resin is comparable to

that found in best black film used in electrical applications. Most dramatic application is in solar distillation unit designed by Du Pont in conjunction with Dept. of Interior to utilize sun's energy in converting salt water to fresh water.—E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del.

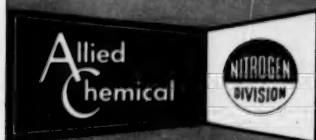
Polyethylene Blend

Poly-wax mixture improves injection molding. (192H)

... Polyethylene blended with new exceptionally hard, high-melting-point, coal-derived wax shows improvements for injection molding of plastic items. 10% blend in 20,000 m.w. high-pressure poly showed melt

index of 5.8 g.; 20% combination had a melt index of 15.6; while the 20% polyethylene blend had an index of 47. Unblended polyethylene had a melt index of 1.98.—Moore & Munger, New York 6, N. Y.

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A specially formulated low-water content, highly concentrated solution especially suited to manufacture of urea-formaldehyde resins and adhesives. Contains 59% formaldehyde, 26% urea.

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RESINS & PLASTICS, cont.

Polyethylene, Dense

Superior to both conventional, intermediate-density poly. (194A)

... While retaining desirable non-toxic and odorless properties usually associated with polyethylenes from the high-pressure process, Poly-Eth Hi-D (high pressure) resins exhibit

greater stiffness and strength, higher heat resistance and less permeability than standard- or intermediate-density polyethylene.—*Spencer Chemical Co., Kansas City 5, Mo.*

Polyethylene, Dense

Stiffer, less permeable than conventional poly. (194B)

... Widening markets for polyethylene are promised by high-density poly for film, Poly-Eth Hi-D 2504. Properties of the new poly include increased heat resistance (good for

packaging foodstuffs for freezing and subsequent boiling before serving); greater stiffness than conventional poly.—*Spencer Chemical Co., Kansas City 5, Mo.*

Polyethylene, Foam

Has tensile strength of 500-600 psi. (194C)

... Expanded foam polyethylene, Agilene-F, is unicellular, lightweight, extremely buoyant, has excellent compressibility. Offered in such semi-finished molded components as rings,

blocks, rods, sheet, this expanded poly foam may be used for heat and electrical insulation, sound proofing applications.—*American Agile Corp., Bedford, Ohio.*

Poly, Irradiated

Excellent thermal properties prompts hike in volume and variety. (194D)

... Moving from pilot research to full-scale production in less than three years, General Electric plans to increase production capacity for its irradiated polyethylene, Irrathene, from 300,000 to 1.6 million lb./yr., with provisions for further doubling of latter capacity. Initial marketing of Irrathene has been in electrical insulation field. But its properties give it a future as protective packaging, encapsulation of small coils and parts, sacrifice films and tapes, protective pipe wrap. Conventional polyethylene

softens around 165 F., melts at 230 F. Irrathene, in sealed systems or in absence of oxygen, withstands temperatures to 392 F. with little change in mechanical or electrical properties over long exposure periods. Some grades of Irrathene (unlike conventional poly), have extended aging life, at, e.g., 302 F. for almost 10 weeks. In addition to six commercially produced grades, there are several available Irrathenes in experimental quantities.—*General Electric Co., Pittsfield, Mass.*

Polyethylene, Low-Pressure

Makes superior pipe. (194E)

... New low-pressure poly is said to make pipe which is superior to any yet produced in terms of high working pressures and temperature resistance

and absence of stress cracking. Other expected uses include tubings, films, sheets, fibers.—*Allied Chemical & Dye Corp., New York, N. Y.*

Polystyrene

Improves breakage resistance of thin walls. (194F)

... SMD-3700 Crystal 11 is free-flowing polystyrene injection molding compound specifically developed for thin walled parts, such as containers and lids, and for intricately designed, long flow parts which tax machine

capacity. Compared with general-purpose polystyrene, it flows easier into mold cavities at lower cylinder temperatures or pressures and on much faster cycles.—*Bakelite Co., New York 16, N. Y.*

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RESINS & PLASTICS, *cont.*

Polystyrene, Expandable

Lightest rigid insulation.
(197A)

... New extrusion process used on Kopper Co.'s expandable polystyrene yields foam of greater compressive strength in ratio to weight than any other insulating materials—a norm

of about 20 lb./sq. in. Extruded slabs are available in widths of 2 ft., thicknesses ranging from $\frac{1}{8}$ in. to 10 in. and at any desired length.—*Dyfoam Corp., New Castle, Pa.*

Polyurethane System

Foams, sets, cures quickly.
(197B)

... Two-component system composed of Nafil AR resin and Nafil HM catalyst will foam, set and cure very quickly without use of external heat or pressure. Ingredients of system

can produce, for example, 2-lb./cu. ft. polyurethane foam which will set in 5 min. and cure in 10 min. at room temperatures.—*Chase Chemical Corp., Pittsburgh, Pa.*

Polyurethane System

Slows down foaming.
(197C)

... Two-component liquid system of polyesters and isocyanates slows down normal urethane-foaming reactions of 30 to 60 sec. to 100-180 sec. This af-

fords safer handling margin and enables pouring into molds before urethanes harden in mixing vessels.—*Dayton Rubber Co., Dayton, Ohio.*

Polyvinyl Chloride

Medium viscosity.
(197D)

... Medium viscosity polyvinyl chloride resin, Plivoc S70, fluxes at lower temperatures than many higher

weight resins; can be calendered, extruded or injection molded.—*Good-year Tire & Rubber Co., Akron, Ohio.*

Potting System, Epoxy

Economical, easy to handle.
(197E)

... Hysol 6900 series is epoxy potting and casting system which brings together economical price, several steps of flexibility, low heat cure and ease of handling. Sold in two-com-

ponent units in three sizes, series includes both filled and unfilled versions with two degrees of flexibility of each type.—*Houghton Laboratories Inc., Olean, N. Y.*

Resin, Acetal

Withstands high temperature, humidity.
(197F)

... Delrin is a formaldehyde-based acetal resin with excellent combination of high tensile strength, toughness, high melting temperature, dimensional stability, solvent resistance, resistance to deformation. It's

similar in probable uses to Zytel nylon resins, i.e., in aerosol bottles, gears, telephone hand sets, pipe, housewares, auto parts, wire coatings.—*E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del.*

Resin Films

Have wide applications.
(197G)

... Two broad anionic and cationic classes, synthetic resin films called Nalfilm have many uses aside from that of permselective ion exchange membranes—e.g., deionizing water, radioactive waste disposal, salt-split-

ting reactions, uranium purification. Ability to vary film strength, flexibility, conductivity, moisture content, thickness suggests use in static-free plastic and batteries.—*National Aluminum Corp., Chicago 38, Ill.*

Resin, Isocyanate

Nontoxic.
(197H)

... Improved isocyanate resin for formulating urethane surface coatings is monomer-free, non-toxic adduct. Called Mondur CB, it replaces company's Mondur C. While providing same properties, it eliminates need

for special ventilation and protective masks which are recommended in processing and applying coatings and adhesives containing free toluene-diisocyanate monomer.—*Mobay Chemical Co., St. Louis, Mo.*

Resin, Silicone

Reduces concrete spallage.
(197I)

... Spallbar silicone resin checks concrete spallage by reducing the amount of water that concrete can absorb and reducing penetration of calcium salts (used in winter ice removal) which

chemically attack concrete. Unlike other highway water repellents, Spallbar can resist loss in repellency from rain.—*Union Carbide & Carbon Corp., New York 17, N. Y.*

Resin, Silicone

Fast curing.
(197J)

... SR-120 silicone resin can be baked in 30 minutes at 400 F. to produce finishes which are superior to organic coatings in heat resistance and comparable to them in hardness, flexibility, impact, chemical resistance. SR-120 films can withstand continued ex-

posure up to 440 F. New copolymer is expected to permit manufacturers using silicone finishes to speed up production lines on equipment which need heat-resistant coatings.—*Silicone Products Dept., General Electric Co., Waterford, N. Y.*

RESINS & PLASTICS, cont.

Resin, Synthetic

Snake-cage polymer separates electrolytes. (198A)

... Resin containing both anionic and cationic sites, located in special geometric arrangement, separates water-soluble materials by absorbing both cations and anions simultaneously from aqueous solutions. Ionic sub-

stances can be washed out of the resin by rinsing with pure water. Extent of absorption and ease with which ions rinse out of resins, varies with different ions.—*Dow Chemical Co., Midland, Mich.*

Resin, Teflon

Can be extruded in standard equipment. (198B)

... Teflon 100-X perfluorocarbon approaches Teflon's heat and chemical resistance but has a low enough melt viscosity to permit extrusion in standard equipment. Experimental resin doesn't have conventional Teflon's features of serviceability at higher

temperatures and good flex life. Therefore it won't supplant Teflon 1, 5, 6 and 30. It will be primarily used in extrusion of tubing, rod, wire coating and sheeting.—*Polychemicals Dept., E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del.*

Resins, PVC

Have improved heat stability. (198C)

... Outstanding characteristic of line of general-purpose polyvinyl chloride resins is improved heat stability with its advantages in quality control and processing. Three charter members of line are Escambia PVC 1250 (high

molecular weight), 1225 (intermediate molecular weight), 1200 (low molecular weight). Resins have been developed for use in calendering, extrusion.—*Escambia Chemical Corp., New York, N. Y.*

Stabilizer, Plastics

Organotin lends light and heat stability to vinyls. (198D)

... Thermolite 25 is said to be first all-purpose organotin light and heat stabilizer ever developed. It's effective with every polyvinyl chloride and copolymer resin now commercially available. Vinyls stabilized with

Thermolite 25 don't cross stain when placed against vinyls stabilized with lead or cadmium. They retain brilliant clarity under severe conditions of light, heat, weathering.—*Metal & Thermit Corp., Rahway, N. J.*

Stabilizing System, Vinyl

3x more durable than other systems. (198E)

... Combination of resin, plasticizers and a four-part stabilizer system—barium-cadmium, epoxidized soybean oil, anti-oxidant and organic additive—is responsible for remarkable stability of light-stabilizing system for vinyl. System has withstood 5,600 hr. of accelerated artificial weathering

before failure. Tests show that system provides about 3x outdoor durability than has been previously obtainable in vinyl plastic. System's components are commercially available at costs somewhat higher than current systems.—*Monsanto Chemical Co., St. Louis 4, Mo.*

Styrene-Acrylonitrile

Improved copolymer with good balance of physical properties. (198F)

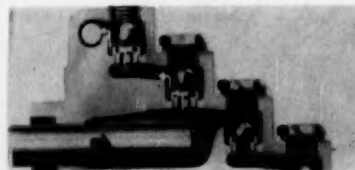
... Styrex 767 is a rigid thermoplastic which can be readily molded or extruded into various shapes and forms. It has excellent balance of physical properties, high degree of

toughness and heat resistance. 767 resists acids, bases, salts, oils, soaps and many solvents. Uses include rigid food containers, bristles.—*Dow Chemical Co., Midland, Mich.*

Styrene Resin, Pelletized

For injection molding, extrusion of industrial and consumer items. (198G)

... Chemical inertness, good high-temperature resistance, high impact strength and good stiffness are among chief assets of Plio-Tuf P100, pelletized modified styrene resin. Pellets are used in injection molding of liquid end valves of controlled volume pumps, radio cabinets, wash basins, chair arms, in extrusion of insulation, welding and pipe, shapes having intricate cross-sections. Available in variety of colors, pellets are uniform in size, permitting accurate metered feeding



and promoting even distribution of heat through materials.—*Plastic Dept., Chemical Div., Goodyear Tire & Rubber Co., Akron 16, Ohio.*

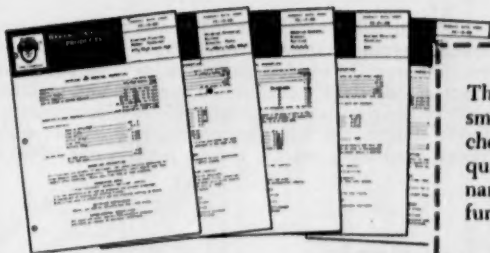
Whitening Agent

Geared for plastics industry. (198H)

... Tinopal PCR optical whitening agent combines excellent solubility in hydrocarbons, ketones and other organic solvents with stability to both heat and light. It dissolves in plas-

ticizers used in manufacture of cellulose acetate and PVC plastics as well as in unplasticized materials like polyethylene and polystyrene.—*Geigy Co., Ltd., Manchester, England.*

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<input type="checkbox"/> Acid Hydrofluoric, 48% (C.P.) A.C.S.	DA-49792
<input type="checkbox"/> Acid Molybdic, 85% Purified	DA-31181
<input type="checkbox"/> Acid Oxalic, Anhydrous	DA-31341
<input type="checkbox"/> Acid Phosphoric, Ortho, 75%, Food Grade	DA-31551
<input type="checkbox"/> Acid Phosphoric, Ortho, 85%, N.F.	DA-31581
<input type="checkbox"/> Aluminum Fluoride, Powder, Technical	DA-32521
<input type="checkbox"/> Aluminum Nitrate, Crystal, Technical	DA-32341
<input type="checkbox"/> Aluminum Sulfate, Hexahydrate, Technical	DA-48871
<input type="checkbox"/> Ammonium Acetate, Crystal, Purified	DA-32711
<input type="checkbox"/> Ammonium Fluoborate, Crystal, Technical	DA-32731
<input type="checkbox"/> Ammonium Fluoride, Crystal, Technical	DA-32671
<input type="checkbox"/> Ammonium Oxalate, Granular, Purified	DA-32351
<input type="checkbox"/> Ammonium Persulfate, Crystal, 98%, Purified	DA-33691
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<input type="checkbox"/> Boron Trifluoride, Ether Complex, Technical	DA-34711
<input type="checkbox"/> Boron Trifluoride, Phenol Complex, Technical	DA-34681
<input type="checkbox"/> Calcium Acetate, Powder, Purified	DA-34971
<input type="checkbox"/> Calcium Chloride, U.S.P.	DA-35011
<input type="checkbox"/> Calcium Fluoride, Powder, Reagent	DA-35281
<input type="checkbox"/> Calcium Phosphide, Technical	DA-35341
<input type="checkbox"/> Chromium Fluoride, Technical	DA-35771
<input type="checkbox"/> Chromium Nitrate, Crystal, Purified	DA-35801
<input type="checkbox"/> Chromium Nitrate, Solution, Technical	DA-49711
<input type="checkbox"/> Chromium Potassium Fluoride, Purified	DA-35791
<input type="checkbox"/> Chromium Potassium Sulfate, Granular, Photo	DA-35841
<input type="checkbox"/> Cupric Fluoride, Technical	DA-34481
<input type="checkbox"/> Cupric Nitrate, Crystal, Purified	DA-34421
<input type="checkbox"/> Cupric Nitrate, Solution, Technical	DA-47701
<input type="checkbox"/> Cuprous Chloride, Technical	DA-36571
<input type="checkbox"/> Ferric Nitrate, Crystal, Technical	DA-37441
<input type="checkbox"/> Ferrous Ammonium Sulfate, Crystal, Technical	DA-37571
<input type="checkbox"/> Ferrous Sulfate, Exsiccated, U.S.P.	DA-37671
<input type="checkbox"/> Lead Nitrate, Crystal, Technical	DA-38371
<input type="checkbox"/> Magnesium Fluoride, Purified	DA-39121
<input type="checkbox"/> Magnesium Nitrate, Crystal, Technical	DA-39131
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<input type="checkbox"/> Potassium Cyanate, Powder, Purified	DA-41591
<input type="checkbox"/> Potassium Cyanate, Powder, Technical	DA-48821
<input type="checkbox"/> Potassium Fluoride, Anhydrous, Purified	DA-40911
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<input type="checkbox"/> Stannous Chloride, Crystal, Technical	DA-43421
<input type="checkbox"/> Zinc Formate, Crystal, Purified	DA-44441

CUT OUT THIS COUPON AND MAIL.

RESINS & PLASTICS, cont.

Window Panes, Synthetic

Bar transmission of ultraviolet rays. (200A)

... Plastic-reinforced glass fibers and special ingredients that filter sunlight combine to make window panes for industrial buildings which store materials ordinarily harmed by ultraviolet light. Panes are also unbreakable; resist chemicals, smoke, smog; need

no painting (color is molded into them); resist vibrations; need never be repaired. Savings in replacement and maintenance costs are expected to compensate for higher price (compared with ordinary glass).—*Firestone Tire & Rubber Co., Akron, Ohio.*

• Rubber & Rubber Chemicals

Accelerator, Rubber

Answer to severe scorching problems in processing. (200B)

... Delayed-action Dibs Accelerator meets high processing temperatures built up during mixing and extruding of super abrasion furnace black stocks. Compound (N, N-diisopropyl benzo-

thiazole-2-sulfenamide) has melting range of 131-139 F., permitting easy incorporation in furnace black stocks.—*Rubber Chemicals Dept., American Cyanamid Co., New York 20, N. Y.*

Accelerator, Rubber

Aids vulcanization. (200C)

... N-acetyl DL-homocysteine thiolactone aids vulcanization by introducing reactive sulfhydryl group. It also stabilizes by forming crosslinking

through disulfide bonds at low temperatures and mild alkalinity.—*Schwarz Laboratories, Inc., Mount Vernon, N. Y.*

Accelerator, Rubber

Fast-curing, adds age- and wear-resistance. (200D)

... 2-MT or 2-mercaptobenzothiazole contributes to vulcanizates such superior properties as higher modulus, increased age resistance, retention of tensile strength and tear resistance at high temperatures, greater resistance to flex-cracking and reduced heat build-up. It's particularly adapted to compounding rubbers for tires, belts,

mechanical goods needing good aging and retained resilience. New production and packaging facilities of another of company's accelerators, MBTS (benzothiazyl disulfide), are improving use characteristics and extending shipping and storage convenience.—*American Cyanamid Co., New York, N. Y.*

Extending Oil

Non-staining, light-stable. (200E)

... Dutrex 33 is a naphthenic product with excellent resistance to discoloration, low volatility and good compatibility. Unlike most naphthenic oils, it hasn't been deprived of desirable vulcanizate and processing characteristics along with color bodies and color formers removed during manufacture. It incorporates many processing advantages which aromatic extending

oils usually have over conventional naphthenic extenders: greater compatibility, faster blending, extended rubber softens more readily on mastication. Yet it avoids drawbacks to aromatics' use in light stock: They promote oxidative degradation of uncured masterbatch, discolor readily, migrate out of finished product.—*Shell Oil Co., New York, N. Y.*

Modifier, Rubber

Minimizes heat buildup in butyl tires. (200F)

... Elastopar (N-methyl-N, 4 dinitroso aniline) is a chemical modifier which checks heat buildup in all-synthetic butyl tires. And factory-confirmed tests show it doubles resilience and strength and significantly increases electrical resistivity of unmodified butyl. Development is expected to expand general-purpose position of butyl rubber. And it expected to prompt butyl's adoption in wide variety of mechanical goods.—*Monsanto Chemical Co., St. Louis 4, Mo.*



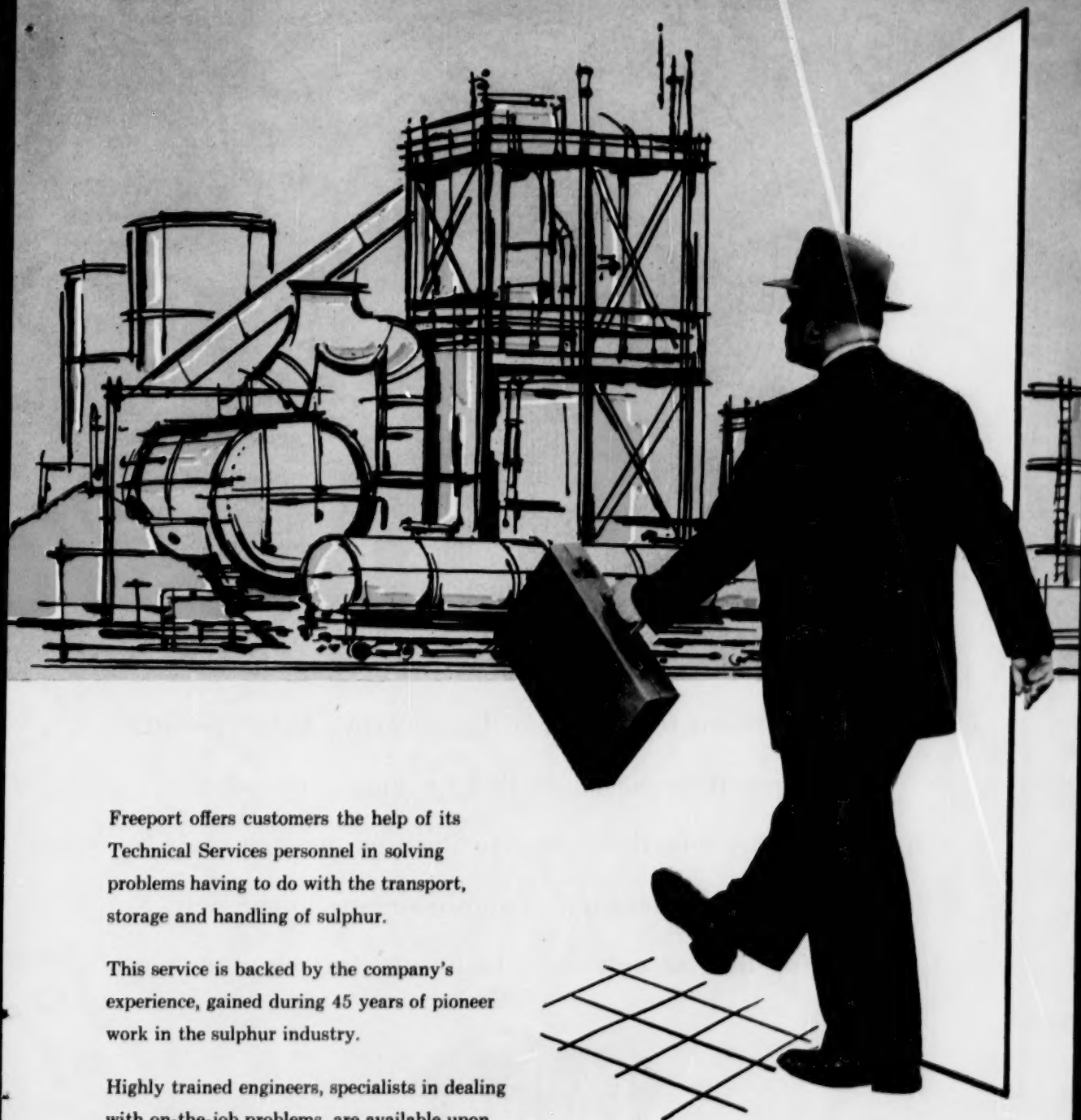
Rubber, Super-Soft

Durometer rating of 5. (200G)

... RRD-992 is a neoprene-based, super-soft, non-porous rubber. Believed to be the softest solid rubber yet developed by industry, it has a softness characteristic of 5 Duro-

meter. It can be used at temperatures to 200 F., is a reasonably good electrical insulator, can be vulcanized or bonded to metal and other materials.—*Roth Rubber Co., Chicago 50, Ill.*

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This service is backed by the company's experience, gained during 45 years of pioneer work in the sulphur industry.

Highly trained engineers, specialists in dealing with on-the-job problems, are available upon request to visit customers' plants.

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in the 1957 Award for Chemical Engineering Achievement.

We congratulate the many Phillips employees who
have again brought this honor to Phillips through their
scientific and engineering accomplishments in the new
and challenging field of extractive metallurgy of the atomic age.



RUBBER & RUBBER CHEMICALS, *cont.***Silicone, Conductive**

Adds electrical conductivity to silicone rubber properties. (203A)

... X-1516 is first of a new class of silicone rubber compounds different from all others previously available. In addition to desirable properties of conventional silicone rubbers, X-1516 provides highest degree of electrical conductivity now commercially available in a flexible, thermosetting material. Electrical resistivities of less

than 100 ohm-cm. are easily obtained. By blending 1516 with other silicone rubbers, spectrum of compounds can be obtained whose electrical resistivity can be adjusted to any point in the range between $3 \times (10)^4$ and $1 \times (10)^{12}$ ohm-cm.—*Union Carbide & Carbon Corp., Silicones Div., New York, N. Y.*

Silicone Rubber

Heat resistant fluoro-silicone. (203B)

... Silastic LS-53 is a fluoro-silicone rubber combining ease of fabrication of silicone rubbers with solvent resistance of fluorocarbons. Hardness elongation and tensile strength are comparable to good, all-purpose silicone rubbers. For the present, Silastic LS-53 is limited to essential aircraft applications: O-rings and other seals where rubber must perform over a temperature range from -80 F. to over +400 F. and still resist swelling and attack by various fuels. After 24 hr. immersion in JP-4 jet engine fuel, conventional silicone rubber O-ring swelled to twice its size while LS-53 ring didn't change.—*Dow Corning Corp., Midland, Mich.*

**Silicone Rubber**

Lightweight foam. (203C)

... COHRfoam is a lightweight silicone foam rubber which remains soft and resilient over a temperature range of -100 F. to +480 F. Because of its interconnecting cell structure, COHRfoam recovers its shape in-

stantly after being compressed for long periods at high temperatures. Current use is in airframe seals where no other material has operated successfully.—*Connecticut Hard Rubber Co., New Haven 9, Conn.*

Silicone Rubber

Electrically conductive. (203D)

... X-1516 silicone rubber, a flexible, thermosetting material with high electrical conductivity, can be molded, calendered or extruded without appreciably changing its electrical properties. Because of its conductivity and resistance to high temperatures,

X-1516 can be used to make anti-fogging heater pads on aircraft cameras; conductive shields for silicone-insulated electrical equipment; industrial rolls, conductive tubing to drain static charges.—*Union Carbide & Carbon Corp., New York 17, N. Y.*

Silicone Rubber

Protects guided missile components. (203E)

... Application of Silastic RTV to electrical components is said to provide quick, easy and almost foolproof guarantee of top performance for vital high-impedance circuits in guided missile and other aircraft projects. Single coating of the room-tempera-

ture-curing silicone rubber cushions vibration at low temperature, provides maximum moisture resistance, improved electrical properties of the panel, protects assemblies from rough handling.—*Dow Corning Corp., Midland, Mich.*

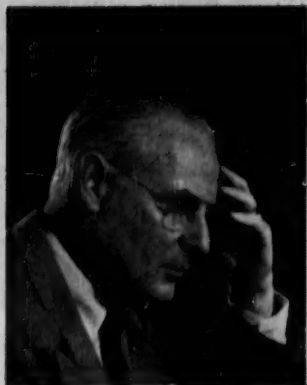
Silicone Rubber

Part of automatic brain valve used to treat water on the brain. (203F)

... Key material in automatic brain valve which has proved 82% successful in over 80 cases of water on the brain, is Silastic S-9711. S-9711 is a soft, resilient, translucent, nontoxic silicone rubber which doesn't have the drawback of conventional plastic brain valves (difficult to sterilize; mechanisms go out of adjustment; body tissue almost always builds up sooner or later and shuts valves off).—*Dow Corning Corp., Midland, Mich.*



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RUBBER & RUBBER CHEMICALS, *cont.***Silicone Rubber**

Withstands jet heat.
(205A)

... Silastic Type K is a silicone rubber which serves as center layer in safety glass windshields for supersonic aircraft. It retains full strength

and clarity at temperatures ranging from -65 to over +350 F. and withstands hours at 375 F.—*Dow Corning Corp., Midland, Mich.*

Silicone Rubber

Has high tear and tensile strength.
(205B)

... 81716 silicone rubber retains unusual temperature resistance of silicones and has added feature of higher tear and tensile strength. Improve-

ments in properties are of similar kind and magnitude as those of Silastic 916 (see below).—*General Electric Co., Waterford, N. Y.*

Silicone Rubber

Has high tear and tensile strength.
(205C)

... Silastic 916 has tensile strength in the range of 1,500 psi., 50% increase over comparable silicone rubbers. Tear strength is about 200 psi., increase of 100%. Elongation is over 500% and Durometer is from 50-60 on Shore A scale. These are typical properties of 916.—*Dow Corning Corp., Midland, Mich.*

**Silicone Rubber**

Meets Navy specs.
(205D)

... K-1014 is silicone rubber compound which meets and exceeds rigid U. S. Navy specs for silicone-rubber-coated glass tapes for cable insulation aboard ships and submarines.

It's marketed as either 100% silicone solids compound or 35% solids coating solution in toluene.—*Silicones Div., Union Carbide Corp., New York 17, N. Y.*

Silicone Rubbers

Preconditioned vinyl compounds.
(205E)

... Five vinyl silicone rubbers—K-1044R, K-1045R, K-1046R, K-1047R, K-1048R—are designed to meet Aeronautical Material Specifications (AMS), joint military rubber (Mil-R) and ASTM specifications for high temperature applications. Features

include controlled reactivity, high tear, high elongation, tensile strength of over 800 psi., low compression set, low moisture absorption, good dry and wet dielectric properties.—*Silicones Div., Union Carbide and Carbon Corp., New York 17, N. Y.*

Stabilizing System

Reduces oxidative degradation of oil-extended butadiene-styrene rubbers.
(205F)

... Addition of small amounts of magnesium naphthenates or resinates to extending oil prior to emulsification and coagulation of latex-oil blend stabilizes masterbatch efficiently, quickly and cheaply. With 125-250 ppm. of magnesium in aromatic extended rubbers (500 ppm. in highly aromatic extended rubbers), it takes 8 days for viscosity to drop 25%. New Mg-based stabilizing system permits preparation of additive by on-the-site mixing of magnesium oxide and tall oil resin acids. Aside from slight retardation of cure, additive has no other effect on processing or vulcanizing quality. And since additive adds to weight of finished product, and since rubber is sold on weight basis, there's essentially no additional cost involved.—*Shell Oil Co., New York, N. Y.*

**Tire Release Agent**

Organo-silicone solves tire surface problems.
(205G)

... L-522 is an organo-silicone tire release agent which lubricates the rubber bag used inside a tire to force it into the mold, thus allowing the bag to slide in neatly and release easily. Formulations containing this

water-insoluble liquid have been used both inside and outside the green tire—in both Bag-O-Matic and conventional machines.—*Silicones Div., Union Carbide & Carbon Corp., New York 17, N. Y.*

RUBBER & RUBBER CHEMICALS, cont.

Vulcanizing Agent

Improved type of insoluble sulfur. (206A)

... Oil-treated grade of insoluble sulfur for use in rubber compounding has low dusting level, thus reducing fire hazards encountered in handling

ordinary sulfurs. Marketed under Crytex trademark, disperses easily in rubber formulations.—*Stauffer Chemical Co., New York, N. Y.*

Vulcanizing Agent

Aimed specifically at fluorocarbon rubber. (206B)

... HMDA-Carbamate permits controlled curing of elastomers and resins capable of being cross-linked with organic polyamines and is especially satisfactory as a vulcanizing agent for Kel-F elastomer. Prod-

uct also shows promise as an efficient curative for other rubbers of the reactive halogen or acrylic ester type. One of its primary advantages is that of controlled reactivity.—*M. W. Kellogg Co., Jersey City, N. J.*

• Surface Active Agents

Antifoam

Knocks foam down fast. (206C)

... Hodag S-118 was developed to tame foams reaching 6 ft. or more at Upjohn's Kalamazoo, Mich., antibiotic waste reduction plant. But it's also expected to have application in municipal waste treatment plants and in a variety of industrial waste treat-

ment processes involving proteinaceous material. Application of antifoam at periodic intervals prevents foam from ever forming. Once formed, it can be knocked down in just two minutes.—*Hodag Chemical Corp., Chicago 45, Ill.*

Antifoam Agent

Controls excessive foaming in continuous diffusion. (206D)

... Hodag BX-108 is an antifoam compound designed to control foaming in continuous diffusers, thus improving diffusion efficiency, eliminating a breeding place for bacteria and minimizing safety hazards for workmen.

BX-108 works efficiently at high temperatures, requires no heating before application. It's stable for long storage periods and is effective in small concentrations.—*Hodag Chemical Corp., Chicago 45, Ill.*

Defoamer

Eases processing of latex paints, paper coating. (206E)

... Surfynol 104A has shown excellent results in aqueous systems where foaming is a process problem. Like other Surfynols, it's a ditertiary acetylenic glycol. Low-foaming, nonionic

surfactant can be used in latex paints, coating and resin sizing of papers, textile sizing, metal cleansers.—*Air Reduction Chemical Co., New York 17, N. Y.*

Defoamer, Silicone

Fast acting. (206F)

... Anifoam B is a silicone defoamer which instantly disperses in aqueous systems, may be added "as is" without

stirring, stays in suspension longer, resists heat and cold.—*Dow Corning Corp., Midland, Mich.*

Emulsifier

From sugar. (206G)

... Sucrodet D-600 is a recrystallized sucrose dipalmitate developed primarily for utility in food, pharmaceutical and cosmetic industries. It's now available in pilot-plant quantities. In

near future, company plans to produce sucrose esters derived from stearic, oleic, myristic and lauric acids.—*Millmaster Chemical Corp., New York, N. Y.*

Surfactant, Anionic

Soluble, stable in strong electrolyte solutions. (206H)

... Dowfax 2A1 is a sulfonate-type surfactant possessing unusually high solubility, stability and surface activity in strong electrolyte solutions. It's effective in detergents, petroleum (as wetting agent for water flooding operations), paper (decreases pulping cycle in sulfite, sulfate, semi-chemical processes). 2A1 is susceptible both to foam boosting and defoaming action.—*Technical Service & Development Co., Midland, Mich.*

➔ Want more information on any of these items? Just write its code number on one of the postcards inside the back cover, then mail it to us. It's that easy now.

Surfactant, Lignin

Precipitates from solution.
(207A)

... Orzan P, surface active lignin sulfonate, precipitates readily from solution and clings to fibers or other materials. Like other Orzans, it is derived from spent liquor resulting from manufacture of paper via sulfite process. And like other lignin

sulfonates, it has outstanding ability to disperse particles in water and hold them in suspension. Recommended uses: binder for fibers, retention of fines, emulsifier, flocculant dispersant.—*Crown Zellerbach Corp., San Francisco, Calif.*

Sulfonates, Petroleum

Emulsifiers, solubilizers, dispersers.
(207B)

... Four segregated petroleum sulfonates have been added to series of surface-active Petrosuls. Neutral calcium and barium Petrosuls are used in rust preventives and fuel oil additive formulations. Alkosul 645 is used in rust preventives and additive for-

mulations; also as raw material for motor oil additives. Petrosul 645 is particularly useful where overlapping properties like emulsibility and corrosion protection are needed.—*Petroleum Sulfonate Dept., Pennsylvania Refining Co., Butler, Pa.*

• Textile Chemicals & Synthetic Fibers**Cloth, Dacron-Hypalon**

Light-weight, rugged.
(207C)

... U. S. Air Force has come up with a Dacron-Hypalon cloth to provide radar shelters with light-weight protective coverings that won't interfere with efficient transmission of microwave energy. Called Dacralon, fabric has highest strength (breaking strength of 45 lb./in.) for given

weight of any known proofed fabric. Dacralon weighs about 7½ oz./yd.; resists sunlight and ozone aging sans serious degradation to its performance in extreme climates; is flexible under arctic conditions.—*Air Research and Development Command, U. S. Air Force, Baltimore 3, Md.*

Fire Retardant, Textile

Permanently protects cellulose fibers.
(207D)

... Cellulose fibers can be made permanently flameproof by combination, without catalysts or special conditions, with phosphorylamide. Treatment is applied in cold padding operations and simply dried and cured

at 290 F. Though drapes and other decorative fabrics are immediate targets, chemical is being considered for flameproofing cellulosic paper and paperboard products.—*Wica Chemicals, Inc., Charlotte, N. C.*

Softener, Resin

For difficult-to-soften fibers.
(207E)

... Wica Softener Apt is a 50% active amphoteric compound which resists yellowing at high temperatures; is compatible with a wide range

of finishing materials; resists laundering, dry cleaning and chlorine dioxide treatment.—*Wica Chemicals, Inc., Charlotte, N. C.*

Softeners, Textile

Improve fabric properties.
(207F)

... Syl-Soft 10 and Syl-Soft 12 are water-dilutable emulsions of reactive silicone fluids. As little as 1-2% emulsion is needed to give processed fabrics a softer hand, improved tear

resistance and sewability. Emulsions are nonionic. And they may be used alone or as ingredients in resin finishing baths.—*Dow Corning Corp., Midland, Mich.*

Textile Treatment

Repels oil-borne stains.
(207G)

... Scotchgard treatment—with fluorochemicals—makes fabrics resistant to lube oils, cooking greases, gravies (as well as to water-borne and combination stains). Treatment makes fibers of treated fabric resist wicking, i.e., soaking up liquids. Fluorochemical application takes place during fabric finishing process with result that fabrics can be commercially cleaned at least five times and still retain their oil repellency. First fabrics to be treated with Scotchgard will be in men's apparel and upholstering materials.—*Minnesota Mining and Mfg. Co., St. Paul, Minn.*



TEXTILE CHEMICALS, *cont.*

Vat Dye, Anthraquinone

Produces greenish-black shades on cotton, rayon. (208A)

... National Carbanthrene Direct Black 3G Double Paste is unaffected by presence of metal in the dyebath, can be used in all types of dyeing equipment. It offers maximum fastness to light in heavy shades, excellent

fastness to most wet processing. Paste can be used in production of resin-finished apparel fabrics and materials subsequently to be rubberized.—*National Aniline Div., Allied Chemical & Dye Corp., New York, N. Y.*

Whitening Agent

Effective on acrilan. (208B)

... Calcofluor White 4BT can be used not only on cellulosic fibers but also on acrilan. It requires no extra application step after bleaching, but can

be applied either to H₂SO₄ pretreatment or to Textone bleach bath.—*American Cyanamid Co., New York 20, N. Y.*

• Miscellaneous Chemical Products

Additive, Plating

Speeds up chromium plating operations. (208C)

... CPA 1800 is both a cost-saving and quality-improving material for decorative and chrome plating applications. In replacing part of the sulfate used in conventional chrome-plating solutions, CPA 1800 speeds up and

simplifies plating operations by providing faster plating, broader operating range of plating solution, greater covering power.—*Chromium Chemicals Div., Diamond Alkali Co., Cleveland, Ohio.*

Aluminum, Green-Toned

For architectural use. (208D)

... Green-toned aluminum products, colored via chemical immersion treatment, are being offered in V-beam, ribbed, corrugated and flat flashing sheet. Color treatment increases aluminum's resistance to corrosion from

salt spray and industrial fumes; makes roofing and siding treated with it ideal for power plants, manufacturing buildings and other industrial structures.—*Aluminum Co. of America, Pittsburgh 19, Pa.*

Boron-10

Available to non-AEC customers. (208E)

... Boron-10, five times better than natural boron for absorbing thermal neutrons, is available to private industry at prices ranging from \$3.10 to \$8.60/g., covering assays from 61% to 95%. Broader availability will allow broader exploitation of isotope's excellent neutron-absorbing property. To date, boron use has been limited to control rods. Now use may be ex-

tended to include reactor shielding, instruments to measure neutron densities, dosimeter (safety device which measures radioactivity absorbed by individuals), filler in plastics or paper. Non-radioactive B-10 is produced at AEC's Hooker-Electrochemical-operated plant in Niagara Falls, N. Y.—*U. S. Atomic Energy Commission, Niagara Falls, N. Y.*

Boron Nitride

As hard as diamond. (208F)

... Cubic boron nitride, produced via superpressure, supertemperature research, scratches diamond almost exactly as diamond scratches diamond. But unlike diamond, new material,

called borazon, can withstand temperatures of more than 3,500 F. Thus it should prove better than diamond for many industrial uses.—*General Electric Co., Schenectady 5, N. Y.*

Ceramic-From-Glass

Light, hard, tough, temperature resistant, low cost. (208G)

... Family of basic materials, Pyroceram, are harder than high-carbon steel, lighter than aluminum and up to nine times stronger than plate glass. Pyroceram differ from glass in that they're essentially crystalline in nature; they differ from ceramics in that their crystalline structure is much finer. Materials can be individually formulated to have good mechan-

ical strength, excellent electrical insulating properties at very high temperatures, superior thermal shock resistance and hardness. They are nonporous and as impermeable to gases as best glasses; therefore can be used for construction of high-vacuum apparatus, chemical process pipelines, etc.—*Corning Glass Works, Corning, N. Y.*

Desiccant, Bauxite

Overcomes souring of LPG products. (208H)

... Driocel S, low-cost, activated bauxite desiccant, offers improved drying and stabilizing; absence of souring reaction with sulfur compounds;

no acid polymerization catalytic reaction toward heavy ends of liquefied gases.—*Minerals & Chemicals Corp. of America, Menlo Park, N. J.*

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Aluminum Bromide Anhydrous. Technical grade, dark colored product suitable for most manufacturing uses. Highly reactive catalyst, many uses in organic synthesis especially in isomerization, bromination and halogen exchange reactions. Available as solid or lump.

Ammonium Bromide N.F. X. A white powder, very pure, complies with all the requirements of the National Formulary. Commonly used as sedative in pharmaceutical preparations. Also in photography, textile finishing and as fire retardant for fabrics.

Bromine, Dry. A powerful oxidizing and brominating agent used in manufacture of dyes, pharmaceuticals. Many applications in organic synthesis. Low moisture content of 30 ppm permits use in nickel and monel equipment. Very irritating to skin, eyes.

Chlorobromomethane "CB". A specially prepared pure, noncorrosive fire extinguishing fluid. Now finding increased use in factories, warehouses, homes. Clear, colorless, 2 degrees C. boiling range; complies with current military specifications. Used as solvent and in organic synthesis.

Cyclopentyl Bromide. A clear, colorless liquid with an aromatic odor. Specially prepared for use in organic synthesis, particularly for introduction of the cyclopentyl radical. Many potential uses in manufacture of pharmaceuticals. Purified grade, 2 degrees C. boiling range.

1, 3-Dibromo-5, 5-dimethylhydantoin. $C_8H_8Br_2O_4Na$. A bromine carrier and oxidizing agent. Useful in synthesis for side chain bromination and bromination of allylic carbon atoms. A fine stable powder with a minimum active bromine content of 54%.

β - Diethylaminoethyl Chloride Hydrochloride. $(CH_3CH_2)_2NCH_2CH_2Cl \cdot HCl$ (DEC). A granular solid. Specially suited for use as an intermediate in organic chemical manufacture, including antispasmodic agents and other pharmaceuticals.

β - Dimethylaminoethyl Chloride Hydrochloride. (DMC). $(CH_3)_2NCH_2CH_2Cl \cdot HCl$. A granular solid. Specially prepared for use in manufacture of antihistaminics and other pharmaceuticals. Other potential uses in organic synthesis. Relatively nontoxic in hydrochloride form.

β - Dimethylaminoisopropyl Chloride Hydrochloride. $(CH_3)_2NCH(CH_3)CH_2Cl \cdot HCl$ (DMIC). An organic intermediate similar

in appearance and properties to DEC and DMC. Specially prepared for manufacture of analgesics and other pharmaceuticals. Other potential uses in organic synthesis.

γ - Diethylaminopropyl Chloride Hydrochloride. $(C_2H_5)_2NCH_2CH_2CH_2Cl \cdot HCl$ (DEPC). A light tan to white crystalline hygroscopic solid. Used in pharmaceutical manufacture, especially for introduction of the diethylaminopropyl radical.

γ - Dimethylaminopropyl Chloride Hydrochloride. $(CH_3)_2NCH_2CH_2CH_2Cl \cdot HCl$ (DMPC). A white powder of singular purity. A versatile intermediate for pharmaceutical and organic syntheses, available exclusively from Michigan Chemical.

Ethyl Bromide. A clear, colorless, volatile liquid, specially prepared for use as an intermediate in organic synthesis. Practically free from impurities; has a narrow boiling range. Used in manufacture of dyes, perfumes and pharmaceuticals.

Hydrobromic Acid. A clear, colorless or light amber colored fuming liquid. Used for manufacture of inorganic metal bromides, aliphatic bromides, pharmaceuticals, dyes and intermediates. 48% acid and other strengths.

Magnesium Carbonate, Basic, Technical. Fine, uniform white powder, 325 mesh, bulk density 5.5 pounds per cubic foot. Very reactive. Used for rubber compounding, printing inks, paints, varnishes. Anticaking agent for table salt; conditioning or bulking material for powder formulations.

Magnesium Hydroxide. Fine, white powder, typical assay 96.3%, low in moisture, iron, alumina, silica. Technical and NF X grades. Special bulk densities available in NF grade. Convenient material for manufacture of light magnesias, other magnesium compounds.

Magnesium Oxides. Six principal grades of Michigan magnesium oxide with wide range of desirable physical and chemical characteristics covering principal uses of MgO , including rubber compounding, rayon manufacture, ceramics, glass, refractories, insulation.

Methyl Bromide. A heavy, colorless liquid, vaporizing at 40 degrees F., nonflammable and poisonous. Highly penetrating and insecticidally effective fumigant. Also used in organic synthesis for the introduction of the methyl group, especially in preparation of certain pharmaceutical chemicals.

Monobromobenzene. Clear, colorless, heavy liquid. Specially prepared for use as an intermediate in preparation of organic compounds. For introduction of the phenyl radical and in Grignard-type reactions. A pure material with a 2 degrees C. boiling range; specific gravity 1.495.

Phosphorous Tribromide. Brominating agent. A liquid, boiling point 173 degrees C., which fumes in contact with moist air. Used in synthetic work to convert alcohols to bromides, and acids to acyl bromides. Specially useful in preparation of bromides from alcohols without rearrangement.

Potassium Bromate, Granular. A fine, white, granular or crystalline material 99.5% pure. Decomposes at 370 degrees C. with evolution of oxygen. Strong oxidizing agent, used as an analytical reagent. Neutralizer in permanent wave compounds.

Potassium Bromate, Powder. A fine uniform powder with same properties as Granular. Available with added magnesium carbonate conditioning agent when specified. Suitable for use as an aging additive for flour.

Potassium Bromide, N.F. X. Pure, white granular powder. Low in chloride, passes all N.F. requirements. Widely used in the preparation of photographic emulsions, and in lithography. One of the most important sedatives. Available in several granulations.

Sodium Bromide, U.S.P. XV. Pure, white crystalline powder or granules. Passes all requirements of the U.S. Pharmacopoeia. High assay; low in chloride. An important nerve sedative. Used in manufacture of other bromides. Contains about 77.5% bromine.

Tetrabromophthalic Anhydride. $C_8Br_4O_3$. High molecular weight phthalic anhydride having a bromine content of 66%. Will undergo most of the reactions of phthalic anhydride. Pale yellow crystalline compound melting point minimum 265°C.

Trimethylene Chlorobromide. Clear, colorless liquid used in manufacture of anesthetic grade cyclopropane. Greater reactivity of bromine atom makes trimethylene chlorobromide specially useful also in preparation of gamma chloro compounds. Boiling range 2 degrees C. maximum.

Zinc Bromide Solution, Optical Grade. Clear, colorless solution, about 80% $ZnBr_2$. Used in laboratories dealing with radioactive chemicals as a radiation viewing shield; the most satisfactory material. Meets all chemical and optical specifications of Argonne National Laboratory.

Also Manufacturer of Rare Earth Compounds and Metals, Pestmaster* Insecticides, Pestmaster* Methyl Bromide Fumigants and Dustmaster* Road Chemicals.

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209

New Chemicals & Raw Materials

1957 INVENTORY

MISCELLANEOUS, cont.

Desiccants, Zeolite

Have up to 19 times usual capacity for drying refrigerants. (210A)

... On basis of results reported by both manufacturer of Molecular Sieves (synthetic zeolite desiccants) and manufacturers of refrigeration and air-conditioning equipment, MS Type 4A have up to 19 times capacity of best silica-type adsorbents in drying popular refrigerants. Among the more important advantages of Molecular Sieves: High water capacity at re-

frigeration unit temperatures as high as 140 F. and at water concentrations as low as 10 ppm.; improved equipment design (greater adsorptive capacity means smaller dryer cartridges); increased capacity of drying cartridges; complete removal of acids by coadsorption with water no refrigerant breakdown.—*Linde Air Products Co., New York 17, N. Y.*

Dispersions, Glass

Protect metals during hot working. (210B)

... Coatings consisting of finely divided glass dispersed in chemical and resin solvents (e.g., silicones, mineral oils, ethyl and isopropyl alcohols) are used in the manufacture of Nimonic, as well as titanium, turbine compressor blades. One dispersion, dag 1205B

(a semicolloidal glass in isopropanol), protects a number of titanium alloys while they're being worked. After vapor degreasing of metal, coating is applied by dip, brush or spray.—*Acheson Colloids Ltd., London S. W. 1, England.*

Graphite, Welded

For nuclear reactor construction. (210C)

... A combination of heat and pressure melts graphite and welds pieces together. Most immediate significance of the process lies in the possibility

of prefabricating sheets and panels of graphite for assembly of nuclear reactor moderators.—*National Carbon Co., New York 17, N. Y.*

Lithium Dispersions

Polymerization catalysts for rubber. (210D)

... Lithium dispersions have been produced successfully in a wide variety of organic media including dodecane, diisopropyl benzene, mineral oil, pet-

rolatum and paraffin wax. Particle sizes range from 5 to 20 microns.—*Lithium Corp. of America, Minneapolis 8, Minn.*

Lithium Metal

One-pound ingots. (210E)

... One-pound ingots of lithium metal are available from Foote Mineral's Exton, Pa., plant. Metal, packed un-

der oil in sealed cans, typically analyzes 99.8% Li.—*Foote Mineral Co., Philadelphia 44, Pa.*

Magnesium Oxide

Available in purities greater than 99.5%. (210F)

... Low-lime low-silica, low-iron, low-boron magnesium oxide is only domestic source of 99.5% MgO in commercial quantities. Product is used in atomic energy field in neutralizing acid solutions to provide controlled pH adjustment; provides domestic source of magnesite for electrical in-

sulation. It's being tested in special refractories, ceramics and special glasses, fine chemicals (reagent grade), extenders. Two physical forms are available—pellets (1-in. diameter, 1-in. thick) and powder.—*International Minerals & Chemical Corp., Chicago 6, Ill.*

Magnet, Ceramic

Permanently magnetized. (210G)

... Ferroxdure, a ceramic magnet, can be permanently magnetized to hold its strength under most adverse conditions. It also eliminates reliance on critical and costly metals; remains

unaffected by external fields; is practically impossible to demagnetize once polarized; can be molded into various shapes.—*North American Philips Co., New York, N. Y.*

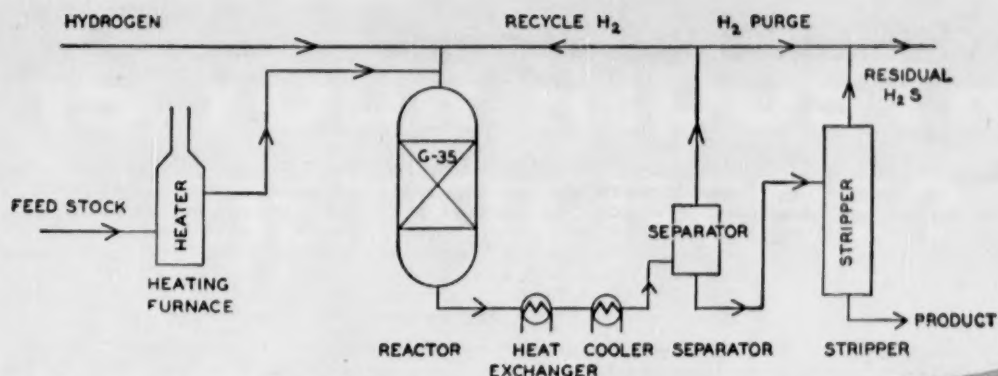
Magnetic Powder

Yields powerful permanent magnets. (210H)

... Chemical compound having the formula MnBi (virtually 100% MnBi) is reported to have 10 times the resistance to demagnetization of most of its commercial rivals. This resistance, coming from a magnetic property called high coercive force, prevents manganese-bismuth magnets from being adversely affected by ex-

ternal magnetic fields; suggests their use in electric meters where stray magnetism from large electrical equipment is likely to be encountered. And it also makes possible a whole assortment of permanent magnets having novel shapes, e.g., wafers and disks.—*Westinghouse Electric Corp., Pittsburgh 30, Pa.*

FOR MORE INFORMATION on any item in this section, write its code number on one of the Reader Service postcards (inside back cover) and mail. It's fast and easy.



Naphthas, middle distillates, gas oils and lube stocks can all be upgraded by hydrogen treating with the use of new Girdler G-35 catalysts. These highly active cobalt molybdenum catalysts were developed specifically for the desulfurization, denitrification and stabilization of petroleum feedstocks covering a wide molecular weight range. Typical flow diagram is shown.

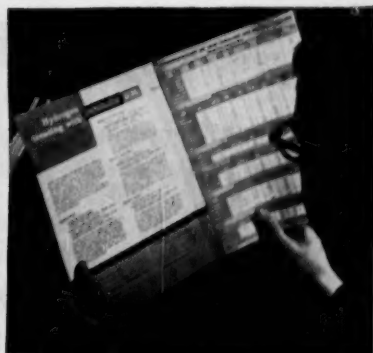
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hydrogen-treating catalysts*



G-35 HAS OUTSTANDING PHYSICAL PROPERTIES — these are retained even after extended use. Permit outstanding operational flexibility, continuous economical operation with essentially 100% yields.



IMPROVEMENT OF COLOR stability, lead susceptibility, burning characteristics and the removal of poisons from catalytic reforming feedstocks are among the more important results achieved. Girdler's expanded production facilities are geared to meet your needs for G-35 catalysts.



DETAILED INFORMATION is available on G-35 catalysts. Bulletin GC 304 discusses applications, gives process conditions for various distillate stocks, performance features and typical catalyst specifications. Free on request.

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A DIVISION OF NATIONAL CYLINDER GAS COMPANY
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MISCELLANEOUS, cont.

Mica, Synthetic

In powder and sheet form. (212A)

... Four forms of Synthamica, a chemically pure synthetic mica capable of withstanding sustained temperatures to 2,000 F. without physical or electrical failure, are Synthamica 202, 707, 727, 807. 202 is available in flake or powder; 707 is fully cured, rigid, bonded, inorganic punching ma-

terial; 727 is flexible, partially cured, inorganic bonded material; 807 is integrated synthetic mica paper sheet containing no chemical binder. It has little mechanical strength, but is of interest for applications requiring pure mica paper. — *Synthetic Mica Corp., Caldwell Township, N. J.*

Neodymium Oxide

High purity. (212B)

... 95% pure neodymium oxide is being offered as commercial grade of purified rare earth with potential ap-

plications in cracking reforming catalysts, metals, glass. — *Research Chemicals, Inc., Burbank, Calif.*

Nitrogen 15

Enriched to above 95%. (212C)

... Nitrogen 15 can now be manufactured enriched to above 95%. A stable isotope widely used in research

as a tracer, it's been available until now enriched to maximum of 60%. — *Isomet Corp., Palisades Park, N. J.*

Phosphorus Pentasulfide

Two grades available in carload, truckload lots. (212D)

... Phosphorus pentasulfide in two grades—regular and reactive—is available in carload or truckload quantities. With reactive grade, reaction starts so quickly that no ex-

ternal heat is needed and normal plant cooling systems often must be increased to provide adequate control. — *Inorganic Div., Monsanto Chemical Co., St. Louis 1, Mo.*

Potassium Silicate

In two grades. (212E)

... Potassium silicate is commercially available in two new grades—No. 28 and No. 40. No. 28 is recommended as an adhesive and binder for welding rod coatings; for special cements and other coatings. No. 40,

more alkaline than No. 28, is for additional applications like builder for potash soaps and for rapid-sudsing soaps, synthetic detergents normally prepared in liquid form. — *Cowles Chemical Co., Cleveland, Ohio.*

Radioisotope

Short-lived, distributed privately. (212F)

... Short-lived radioisotope standards of type previously supplied by National Bureau of Standards are being privately prepared and distributed. Solutions of iodine-131, phosphorus-

32, gold-198, sodium-24 and potassium-42 will be distributed on semi-annual schedule at no increase in Bureau price of \$20/standard. — *Nuclear-Chicago Corp., Chicago, Ill.*

Rare Earth Compounds

Highly pure. (212G)

... Rare earth compounds—in purities from 98-99.9%—are available for immediate, quantity delivery. Com-

pounds come as oxides, acetates, chlorides, nitrates, sulfates. — *Research Chemicals, Inc., Burbank, Calif.*

Release Agent

For epoxy castings. (212H)

... Sonite Seal-Release can be rubbed to an imperceptible film after application, making for easy parting of epoxy resin castings from plaster

molds; metal, wood or epoxy masters. Agent also seals surface pores to exclude water vapor. — *Smooth-On Mfg. Co., Jersey City 4, N. J.*

Refractory

Corrosion resistant. (212I)

... Corhart 104 Electrocast Refractory is a magnesite-chrome basic refractory for open hearth steel furnaces. It's manufactured by electrically melting raw materials at 4,300

F. Corhart 104 has extremely high corrosion resistance and high load-bearing strength at elevated temperatures. — *Corhart Refractories Co., Louisville, Ky.*

Silicon, Hyper-Pure

New grades, prices for electronic customers. (212J)

... Du Pont has established four separate grades of hyper-pure silicon at generally lower prices. Three grades are semiconductor silicon. No. 1, containing no more than 3 parts per billion of boron, is priced at \$360/lb. No. 2, 6 parts per billion of boron, costs \$250/lb. No. 3, less than 11 parts per billion of boron, costs \$160/

lb. Solar cell grade costs \$150/lb. No. 1 is for power rectifiers and transistors for high voltage applications. No. 2 corresponds to bulk of semiconductor silicon used in existing applications. No. 3 has been used in solar batteries for radios, toys. — *E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del.*

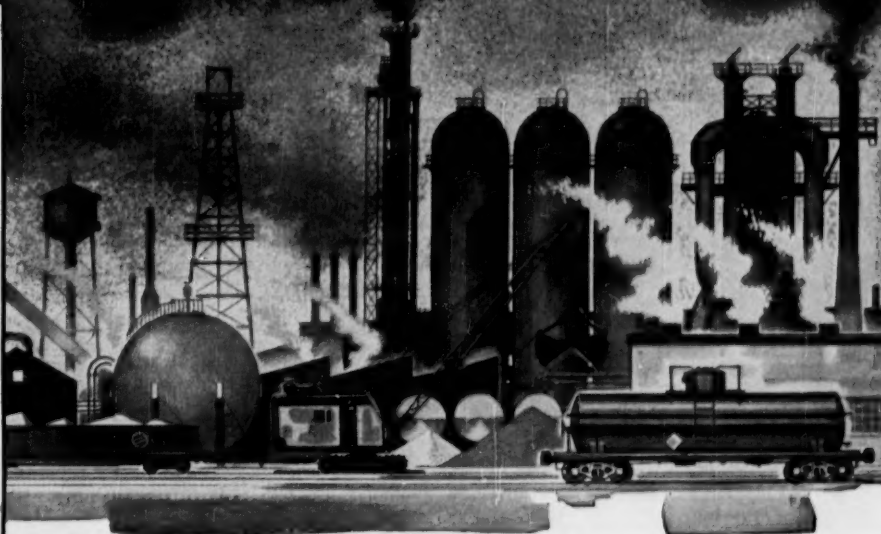
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 Feed Stuff, Mineral Feed
 Fertilizer
 Food
 Glass
 Insecticide and Fungicide
 Laundry
 Leather
 Lithographing
 Linoleum and Floor
 Covering
 Lubricant
 Match
 Metallurgical
 Metal Working
 Oil Cloth
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MISCELLANEOUS, *cont.*

Silicon, Hyper-Pure

New grades and prices.
(214A)

... Unlike Du Pont, Texas Instruments Co. stresses total impurity content rather than boron alone in its ratings for silicon. Research grade, rated on basis of total impurities, is

less than 1 part per billion, costs \$980/lb. Premium grade (roughly comparable to Du Pont's No. 1) costs \$500/lb. Standard grade is \$320/lb.—*Texas Instruments Co., Houston, Tex.*

Silicon, Semiconductor

Essentially free of boron.
(214B)

... Method devised to remove boron impurities from commercially available silicon should make available improved transistors and other semiconductor devices. Process involves reaction of molten silicon with water vapor to oxidize the boron. Oxida-

tion products are evaporated. Method makes possible production of silicon containing boron concentrations of less than one part in ten billion and having resistivity greater than 3,000 ohm-cm.—*Bell Telephone Laboratories, New York 14, N. Y.*

Silicon, Solar-Cell

Suitable for use in solar converters.
(214C)

... Special grade of silicon for use in solar batteries is exceptionally pure, yet this grade doesn't require extreme purity of semi-conductor silicon used in electrical and electronic devices.

Therefore, its price (\$180/lb.) is lower than that of semi-conductor grade (\$350/lb.).—*E. I. du Pont de Nemours & Co., Inc., Wilmington 98, Del.*

Tanning Chemicals

For white-tanned leather.
(214D)

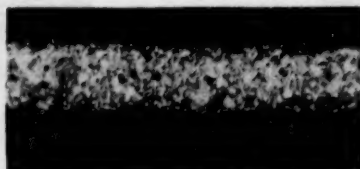
... Combination of two tanning chemicals—Zircotan S (a sodium zirconium silicate) and Leukanol C (condensed phenolic syntan)—in tanning formu-

lations makes for a finished leather with improved temper, tighter break and brighter white.—*Rohm & Haas Co., Philadelphia 5, Pa.*

Thorium, Crystal Bar

Highest purity now available.
(214E)

... Highest purity thorium, available as crystal bar, contains less than 50 ppm. oxygen, less than 20 ppm. nitrogen, less than 40 ppm. carbon. Purity is of major importance to thorium's use as a fuel in atomic breeder reactors.—*Metal Hydrides Inc., Beverly, Mass.*



Titanium Trichloride

Potential Ziegler catalyst.
(214F)

... Titanium trichloride, previously obtainable only in ounce or gram quantities for research, is now being manufactured on semi-commercial basis. It has attracted research attention because of potential application as a catalyst for manufacture of isotactic polymers like polypropylene,

polybutene, polystyrene. Titanium trichloride has been cited in literature as a promising catalyst for production of Ziegler low-pressure poly, of new cis-polybutadiene rubber, and for use in Friedel-Crafts type reactions.—*Stauffer Chemical Co., New York, N. Y.*

Trimethyl Aluminum

Potential Ziegler catalyst.
(214G)

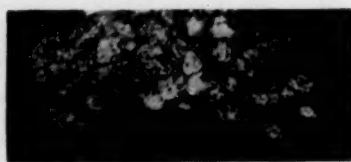
... Pilot-plant quantities of trimethyl aluminum are being made at Laurel, Md. Compound has possible use as an intermediate for chemical synthesis as well as polymerization catalyst. A highly flammable liquid which ignites spontaneously in air, it's being tested as a fuel and ignitor

for ram jet and turbo jet engines. Also available from pilot plant is methyl aluminum sesquichloride, a mixture of methyl aluminum dichloride and dimethyl aluminum chloride. This too may find use as a catalyst or intermediate.—*U. S. Industrial Chemicals Co., New York, N. Y.*

Zirconium Platelets

New form excels sponge in shipping ease. (214H)

... Zirconium platelets, irregular flakelike pieces about the size of dimes and quarters, are superior to ordinary sponge form in that they are non-pyrophoric, non-hygroscopic and extremely pure. None of packaging restrictions applied to sponge affect shipment of platelets because they are classified as metal, rather than metal sponge, and are safe to handle.



—*U. S. Industrial Chemicals Co., New York, N. Y.*

Literature Available

NEW CHEMICALS & RAW MATERIALS

Accelerator, Rubber.....Bunac D-74 supplements other primary accelerators; particularly useful in compounding GR-S rubber. Gives many improved properties to rubber. Write for details.
215A Olin Mathieson Chem. Corp.

Acetonitrile.....Technical information includes physical & chemical properties, solubilities of various materials in acetonitrile, specific reactions, physiological properties, etc. Request Bulletin F-7501D.
215B Carbide & Carbon Chem.

Acetophenone.....Bulletin covers physical properties, shipping data, specifications, solubility, applications, typical reactions, physiological properties. Complete details available in Bulletin F-6970A.
215C Carbide & Carbon Chem.

Acetophenone.....8 p. technical bulletin gives properties specifications, shipping containers, constant-boiling mixtures, & solubilities. Typical reactions are given & descriptions of its use. See Bulletin F-40,091.
215D Carbide & Carbon Chem.

Acid, Chlorosulfonic.....Technical bulletin on chlorosulfonic includes: bibliographies, physical and chemical properties, analysis, typical reactions, handling and corrosion characteristics and safety data.
215E Monsanto Chem. Co.

Acids, Fatty.....Comprehensive and convenient reference work for users of fatty acids and chemicals derived from fatty acids. Reviews composition of fats and oils. "The Chemistry of Fatty Acids."
215F Armour & Co.

Acids, Fatty.....These fatty acids are readily available from the El Dorado Div.—caprylic, elidhyco, capric, lauric, coconut, palmitic and myristic. Company makes details available and offers samples.
215G Foremost Food & Chem.

Acids, Fatty.....4 p. brochure tabulates the specifications and components of Groco fatty acids. Includes all vital data on Gross stearic, oleic, tallow and vegetable fatty acids. Available on request.
215H A. Gross & Co.

Acids, Fatty, Polymerized.....20 p. booklet, titled "Empol 1022 Polymerized Fatty Acid" gives complete description, specifications, characteristics, considerable applications data and shipping data.
215I Emery Industries.

Acid, Glacial Methacrylic.....17 p. Bulletin on glacial methacrylic acid contains chapters on availability and containers, typical properties, handling, inhibitors, polymerization, reaction, uses.
215J Rohm & Haas Co.

Acid, Hydrofluoric.....Hydrofluoric acid for alkylation catalyst, steel pickling, glass frosting and etching. Information on manufacture and industrial applications of hydrofluoric acid.
215K General Chem. Div.

Acid, Hydrofluoric.....Revised 48 p. booklet covers properties and essential information for safe handling and use of anhydrous and aqueous HF. Request data sheet SD-25 from company.
215L Harshaw Chemical Co.

Acid, Levulinic.....Versatile levulinic acid can be used as a chemical intermediate, solvent, emulsifier, plasticizer, therapeutic source of calcium, and plant hormone aid. Get Bulletin 301.
215M Quaker Oats Co.

Acid, Muriatic.....Features high purity muriatic acid-Hooker White. This special grade is entirely free of arsenic. Contains .003% or less sulfates, & .0001% or less iron. Technical Data Sheet.
215N Hooker Electrochem Co.

Acid, Oleic.....Bulletin lists physical characteristics and constituents of oleic acid, as well as some suggested applications. Request a sample of Double Pressed Red Oil (Oleic Acid) and Bulletin 05-84-0-5-56.
215O Harwick Standard Chem Co.

Acids, Organic.....Intermediates for solvents, plasticizers, paint driers, synthetic flavors, pharmaceuticals. Physical properties, shipping data, specifications & test methods are discussed in Bulletin F-4768D.
215P Carbide & Carbon Chem.

Acids, Organic.....Pfizer citrates, glucanates and tartarates offer many advantages to metal finishers. One big advantage is non-toxicity—greater safety for personnel in materials handling. Bulletin 61.
215Q Chas. Pfizer & Co.

Acid, Oxalic.....Technical information on Oldbury oxalic acid, including specifications, physical properties, packing data, uses, and handling precautions is given in Data Sheet No. 789.
215R Hooker Electrochemical Co.

Acid, Sulfuric.....Helpful technical bulletin, "Sulfuric Acid", offers wealth of carefully selected data which years of consumer contact have proved to be most useful and most frequently needed.
215S Allied Chemical & Dye.

Acrolein.....24 p. booklet "Acrolein" includes physical properties, applications, typical reactions, derivatives, physiological properties, methods of analysis, shipping data, storage and handling, etc.
215T Carbide & Carbon Chem.

Acrylic Emulsions....."Rhoplex Acrylic Emulsions in Paper Coatings" is the title of a 20 p. booklet containing information on characteristics of acrylic emulsions; properties of pigmented coatings.
215U Rohm & Haas Co.

Additives.....8 p. bulletin explains how the lubricant additive Moly-Sulfide functions in chassis grease and details its properties and current technological status. Bulletin Lu-8a is available on request.
215V Climax Molybdenum Co.

Additives, Lubricant.....Bulletin explains Moly-Sulfide's functions as a lubricant additive and describes commercial uses, such as, chassis grease, railroad journal grease, machine grease. Bul. Lu-6.
215W Climax Molybdenum Co.

Alcohol, Furfuryl.....Derived from agricultural residues & useful in manufacture of wide variety of products including resinous mortars, cements, binder resins. Data on properties in Bulletin 205.
215X Quaker Oats Co.

Alcohols, Fatty.....Bulletin presents the unlimited possibilities of fatty alcohols as raw materials for further chemical reactions. Most important general reactions are included in Bulletin No. 907-R.
215Y Archer-Daniels-Midland Co.

Alcohols, Fatty, Unsaturated.....Technical Bulletin describes "Unadol 40", essentially a mixture of 9, 12-Octadecadienol and 9-Octadecenal. Includes suggested uses, physical properties.
215Z Archer-Daniels-Midland Co.

Alcohol, Polyvinyl.....Tough flexible films that find many uses on paper products can be produced from solutions of "Elvanol" polyvinyl alcohol. Literature and information available on request.
215AA E. I. du Pont de Nemours.

Alcohol, Tetrahydrofurfuryl.....28 p. booklet contains charts & tables, physical data & chemistry, uses, safety & physiological data, and general information. For details, see Bulletin 206.
215BB Quaker Oats Co.

Aldehydes.....Bulletin presents aldehydes for chemical syntheses, rubber accelerators and synthetic resins. Gives physical properties, shipping data, constant-boiling mixtures, specs. Bul. F-5278C.
215CC Carbide & Carbon Chem.

Alkyl Acid Phosphates.....Oldbury alkyl acid phosphates, include methyl, n-propyl, n-butyl, amyl, 2-ethyl hexyl, lauryl, and stearyl. Used as catalysts, stabilizers, oil additives, antioxidants, etc.
215DD Hooker Electrochem. Co.

Alumina.....Of many electrochemically refined materials produced by company, Alundum fused alpha alumina is one of the most useful. Request "Norton Refractory Grain—Electrochemically Refined."
215EE Norton Co.

Alumina, Activated.....Alcoa Activated Aluminas are among the most effective and efficient desiccants available for the dehydration of liquids and gases. Furnishes information and samples.
215FF Aluminum Co. of America.

Aluminas, Hydrated.....Alcoa Hydrated Aluminas Series C-700 general-purpose pigments offer: fine particle size, uniformity, good mixing characteristics and substantial chemical neutrality.
215GG Aluminum Co. of America.

Aluminum Chloride.....Methods for analysis of aluminum chloride are described in detail in 24 p. research report 11.57. Includes sections on reagents, indicators, standard solutions, precautions.
215HH Allied Chem. & Dye Co.

Literature Available

Aluminum Chloride— Chemicals

Aluminum Chloride......Surface area of a solid catalyst, such as aluminum chloride, bears an important relationship to reaction rate. That's why company produces it in 4 different most sizes. Full data.
216A Hooker Electrochem. Co.

Aluminum Chloride, Anhydrous......Data Sheet gives properties and essential information for the safe handling of aluminum chloride, anhydrous. Includes shipping containers, storage. Sheet SD-62.
216B Mfg. Chemists' Assoc.

Aluminum Chloride, Anhydrous......Anhydrous aluminum chloride is of great importance in the manufacture of organic chemicals, synthetic rubber, gasoline and other related chemicals. Bulletin AC-1.
216C - Solvay Process Div.

Aluminum Isopropoxide......4 p. data sheet covers physical properties, specifications, packaging and shipping. Describes its use in organic synthesis, the plastics and paint industries.
216D Anderson Chemical Co.

Amines, Ethylene......Bulletin covers physical properties, specifications, net container contents in pounds, applications and physiological properties. For complete details, request Bulletin No. F-8163.
216E Carbide & Carbon Chem.

Amines, Fatty......What they are, what they will do and how they are made are discussed in 20 p. booklet. Data on vapor pressure, solubility and handling; chemical equations and tables of reactions.
216F Armour & Co.

Amines, Primary......Booklet describing tertiary-alkyl primary amines gives physical and chemical properties and chemical reactions for t-butylamine, t-octylamine, Pri-mene 81-R and JM-T. Bul. SP-33.
216G Rohm & Haas Co.

Ammonium Salts......16 p. booklet covers chemical and physical characteristics of quaternary ammonium salts ranging from germicides to textile softeners and from emulsifiers to corrosion inhibitors.
216H Armour & Co.

Ammonium Thiocyanate......Product Bulletin 102, 4 p., covers ammonium thiocyanate as corrosion inhibitor for ammoniating liquors. Results of extensive laboratory tests are displayed in graphs.
216I J. T. Baker Chem. Co.

Amyl Alcohol......4 p. bulletin F-8517C discusses physical properties, specifications, shipping data, uses and physiological properties of primary amyl alcohol. Most of the data is in chart form.
216J Union Carbide Chem. Co.

Anhydrides......Valuable 20 p. illustrated catalog describes Acetic, Propionic & Butyric Anhydrides, including test methods, specifications, physical properties & shipping data. Catalog F-5280B.
216K Carbide & Carbon Chem.

Aniline......Important uses are: rubber chemicals, dye intermediates, explosives, pigments, pharmaceuticals, photochemicals. Data sheets give properties, specifications, uses and test methods.
216L American Cyanamid Co.

Aniline......Offers aniline that exceeds A.C.S. specifications for CP aniline. Uniform quality assured by automatic instrumentation. Will furnish a sample, specifications, price and delivery quotations.
216M National Aniline Div.

Antibiotics......82 p. review of recent clinical literature on Neomycin, a wide-spectrum antibiotic. Sections on therapy in dermatology, infectious infantile diarrhea, preoperative sterilization of the colon.
216N S. B. Penick & Co.

Antifoams......Information sheet describes properties and applications for this company's antifoam for paint, adhesives, paper, chemical processing. Also provides information on shipping of the chemical.
216O Hodag Chemical Corp.

Antioxidants......8 p. booklet describes use of this company's newest antioxidant in lard, vegetable shortening, salad dressing, vitamins, poultry feed, cattle feed and in packaging materials of many kinds.
216P Catalin Corp. of America.

Antioxidants......Bulletin gives typical chemical and physical properties of two recently announced antioxidant products: 2, 6-di-tertiarybutyl-4-methyl phenol and the same in toluene.
216Q Davison Chemical Co.

Antioxidant......16 p. brochure, called "Koppers BHT Antioxidant," describes the advantages of using butylated hydroxy toluene as an antioxidant for the storage stability and vitamin retention of feeds.
216R Koppers Co.

Antioxidants......Isoascorbic acid and sodium isoascorbic, low-cost antioxidants, are described in a 5 p. technical data sheet. Details on physical and chemical properties and applications. Bulletin 523.
216S Chas. Pfizer & Co.

Aromatics, Chlorinated......Hooker aromatic compounds give you ways of putting benzyl, benzoyl, and nitrobenzoyl groups into organic compounds, particularly through Friedel-Crafts reactions. Data.
216T Hooker Electrochem. Co.

Benzyl Chloride......Bulletin BZYL 1-57 describes properties, storage and handling techniques of benzyl chloride. Also discusses uses in bactericides, fungicides, insecticides, preservatives.
216U Heyden Newport Chem. Co.

Biochemicals......Amino acids, purine and pyrimidine compounds, sugars and sugar phosphates, enzymes, coenzymes and other biochemicals, biochemical reagents, radiochemicals are covered in price list.
216V Schwarz Laboratories, Inc.

Bonding Agents......2 p. leaflet describes a line of rubber-to-metal bonding agents. Lists product names and suggested uses for eleven materials. Covers four series of cements.
216W Harwick Standard Chem. Co.

Bonding Agent......3 p. data sheet describes a rubber-to-metal bonding adhesive, Thixon 11164, which is especially recommended for adhesion of Neoprene to brass plate or as booster with other primers.
216X Harwick Standard Chem. Co.

Bonding Agents......Bulletin is a summary of currently available "Thixon" products for the adhesion of rubber and rubber-like materials to metal. Request Bulletin No. 03-1-5-5-56.
216Y Harwick Standard Chem. Co.

Borohydrides......Two data sheets: one on sodium borohydride, No. 502-F; one on potassium borohydride, No. 301-B. They cover reactions, molecular weight, formula, melting point, thermal stability.
216Z Metal Hydrides.

Boron Compounds......Three amine boranes — dimethylamine-borane, trimethylamine-borane and pyridine-borane—are now available in research quantities. Bulletin C-200 brings details.
216AA Callery Chemical Co.

Bromine......29 pg. booklet, "Bromine", includes properties, methods of handling, detailed product characteristics, etc. Designed for purchasing agents, chemists, handlers & users in industry & research.
216BB Dow Chem. Co.

Butanol......Booklet presents data on physical and physiological properties, shipping information, solubilities, constant-boiling mixtures and applications. Data charts are included.
216CC Union Carbide Chem. Co.

Butyl Oleate......Witco butyl oleate is a stable, non-volatile, oily liquid, which will not solidify under normal winter conditions. Description & information on properties contained in Bulletin E-8.
216DD Witco Chem. Co.

Butyl Oleate......Witco butyl oleate has been found to be the best and most economical plasticizer for use in Neoprene Type WRT. Includes complete information on properties in Technical Bulletin E-9.
216EE Witco Chem. Co.

Butyl Rubber......Portfolio on butyl rubber developments. Information on markets, a technical bulletin evaluation of butyl accelerators (sulfur type cures); a study of carbon black in butyl rubber.
216FF Thiokol Chemical Corp.

Calcium Carbonates......Illustrated, 20 p. booklet, "Witco Witcarbs in Paints," offers data on line of pure calcium carbonates. Includes features and physical and chemical properties. Bulletin 543.
216GG Witco Chem. Co.

Calcium Chloride......Two bulletins offer tables, graphs, applications. Cover properties, use, and control of straight calcium chloride as brine medium in refrigeration and ice manufacturing. Bul. 4 & 16.
216HH Solvay Process Div.

Carbides & Nitrides, Molybdenum......Detailed reference, "Refractory Molybdenum Carbides and Nitrides"—reviews properties and applications of interstitial compounds of molybdenum. Bulletin Cbd-7.
216II Climax Molybdenum Co.

* From advertisement, this issue

- Carbon, Activated.**.....Bulletin tells how to treat liquid waste with Adsorbit activated carbon to remove all types of organic impurities, and many organic materials. Full details in Bulletin J-30.
217A Barnebey-Cheney Co.
- Carbon Black.**.....Company offers a 68 p. reference, "Witco Blacks in Natural and Chemical Rubbers," covering their product line of carbon blacks. Includes information on properties. Bulletin No. 54-1.
217B Witco Chem. Co.
- Carbon-14 Compound, Radioactive.**.....Another radioactive carbon-14 compound joins available uniformly and specifically labelled radioactive amino acids. To be used in biological study. TD 1243.
217C U. S. I. Chemicals Co.
- Carbon Products.**....."Carbon Products for the Glass Industry" points out properties of carbon and graphite that make them desirable for many glass handling and component applications. Table.
217D Speer Carbon Co.
- Carriers, Dye.**.....Tanavol is a modified solvent-type carrier which forms clear colloidal solutions at application concentrations, results in absence of local high concentrations leading to spotting. Bulletin.
217E Tanatex Corp.
- Caseins.**.....Bulletin gives specifications covering Caseins; ecco blend (Canadian and Domestic), standard (Domestic), supreme (Domestic), extra quality (Argentine), super G (Domestic). Bulletin 26-55-1-7-56.
217F Harwick Standard Chem. Co.
- Catalyst Carriers.**.....Alundum carriers prove successful in reactions such as those involved in manufacture of phthalic anhydride, maleic anhydride and oxidation of ethylene. Full details in Bulletin No. 7.
217G Norton Co.
- Catalyst Supports.**.....Made of dense, rugged, chemically inert material—have resistance to breakdown—no chemically reactive effect on processing. Used in suspending beds for active catalysts. Request data.
217H Norton Co.
- Catalysts.**.....How Girdler catalysts benefit you; custom design matches your needs; technical service helps you save; quality control assures uniformity; modern facilities produce economically. Bulletin G 260.
217I Girdler Co.
- Catalysts.**.....Catalog lists Girdler's full line of catalysts for hydrogenation, synthesis of gases and hydrogen generation, desulfurization, new catalytic processes. Send for Bulletin GC 1256.
217J Girdler Co.
- Catalysts.**.....Company offers bulletin on their line of catalysts, including G-33, a nickel hydrogenation catalyst on a special refractory support. Also makes catalysts for new processes.
217K Girdler Co.
- Catalysts.**.....Girdler G-35 catalysts retain outstanding physical properties after repeated regenerations and use. Permit outstanding operational flexibility, continuous economical operation. Bul. GC304.
217L Girdler Co.
- Catalysts.**.....Plus values of Girdler Catalysts: application service; development service; analytical service; market service; advanced promotion. For complete details see "Girdler Catalyst Facilities."
217M Girdler Co.
- Catalysts.**....."Harshaw Catalysts . . . Made to Your Specifications" includes sections on: typical Harshaw catalysts and how they are used; catalytic chemicals supplied by Harshaw, etc. Available.
217N Harshaw Chem. Co.
- Catalysts.**.....Platinum metals catalysts give high catalytic activity and yield; purity of end product & accurate production control. Send for brochures available to you now on request.
204 *Baker & Co.
- Catalysts, Cobalt Molybdenum.**.....Bulletin describes in detail G-35 cobalt molybdenum catalysts for upgrading a wide molecular weight range of petroleum stocks by hydrogen treating. Available.
217O Girdler Co.
- Catalysts, Hydrogen-treating.**.....Bulletin GC 304 on G-35 catalysts covers applications, process conditions for various distillate stocks, performance features & typical catalyst specifications.
211 *Girdler Co.
- Catalysts, Ion Exchange.**.....12 p. booklet describes advantages of using ion exchangers as catalysts for epoxidation of unsaturated oils and olefins, hydration of ethylene oxide, esterification of alcohols.
217P Permutit Co.
- Catalysts, Molybdenum.**.....Presents a comprehensive technical review of the reactions catalyzed by molybdenum compounds. Operating data and reference are included. Company makes Bulletin Ch-8 available.
217Q Climax Molybdenum Co.
- Catalysts, Molybdenum.**.....Company offers a summary of the industrial uses of molybdenum catalysts. Data also given for promising applications still in the experimental stages. Request Bulletin Ch-11.
217R Climax Molybdenum Co.
- Catalysts, Platinum.**.....Baker-developed platinum metal catalysts are available in any required concentration of metal—on the carrier and in the form suited to your requirements. Request brochure.
217S Baker & Co.
- Catalysts, Platinum.**.....Announces development of sorptive minerals to protect platinum catalyst reforming feed stocks. Full information in "Preparation of Petroleum Feeds for Platinum Catalysts."
217T Minerals & Chems. Corp.
- Cationic Flotation.**....."Mineral Flotation with Armour Cationic Chemicals" will prove especially helpful for ore dressers, flotation men and beneficiation engineers. Contains fundamental data.
217U Armour & Co.
- Caustic Soda.**.....Chart presents steps for unloading tank cars of 50% and 73% caustic and a list of safety Do's and Don'ts to be observed in handling the liquid material. Company makes chart available.
217V Olin Mathieson Chem. Corp.
- Cellulose, Hydroxyethyl.**.....Bulletin gives physical properties, net container contents, description of product, and properties of cellulose films. Bulletin F-8544B available upon request.
217W Carbide & Carbon Chem.
- Cellulose, Triacetate.**.....Bulletin reviews properties of Arnel triacetate yarns and fibers, together with types of filament, staple and tow being produced. For details, request Technical Bulletin TD-12A.
217X Celanese Corp. of America.
- Chemical Specialties.**.....Price list and catalog of 1,500 items on which company offers analytical reports via subscription. Reports provide quantitative and qualitative data on specialty items.
217Y Chem. Specialties Labs.
- Chemical Specialties.**.....Aimed at building product specialty, waterproofing and paint manufacturers, folder titled "How to Diversify Your Product Line" discusses four potentially profitable products.
217Z Gas Purifying Prod. Co.
- Chemicals.**.....Learn how research at Union Carbide helps improve many of the products you use every day. Write for "Products and Processes" Booklet P. Company has won many achievement awards.
6 *Union Carbide Co.
- Chemicals.**.....Company offers eight fact-filled booklets on fatty acid chemicals, including amines, quaternary ammonium chlorides, fatty diamines, acetate salts, fatty amides, and others.
68A *Armour Chemical Div.
- Chemicals.**.....16 page booklet lists the many chemicals available from Harshaw, including electroplating salts, dry colors and dispersions, driers and metal soaps, vinyl stabilizers, fluorides, etc.
213 *Harshaw Chemical Co.
- Chemicals.**.....Bulletin lists over 200 fine chemicals, intermediates and industrial chemicals. Includes chemicals for the dyestuff, textile, plastic, paint, metals, rubber, chemical and paper industries.
217AA Aceto Chemical Co.
- Chemicals.**.....Bulletin summarizes physical properties and applications of vinyl monomers, acetylenic alcohols, glycols and hydrocarbons, diterary glycols, and non-ionic surface active agents.
217BB Air Reduction Chem. Co.
- Chemicals.**.....12 p. products catalog and informational booklet describes properties and applications of nearly 70 chemicals including boron chemicals, soda products, potassium compounds, bromines.
217CC Amer. Potash & Chem. Corp.
- Chemicals.**.....The purpose of the "Bakelite Review" is to inform of the developments and applications of plastics and synthetic resins. Issue covers detergents, polyethylene pipe, etc. Vo. 28, No. 2.
217DD Bakelite Co.
- Chemicals.**.....File folder contains availability charts of Baker light metal compounds, heavy metal compounds, acid (inorganic, organic, acid anhydrides) and complete price schedules. Available.
217EE J. T. Baker Chem. Co.

Literature Available

Chemicals—
Dimethyl Sulfide

Chemicals.....Quick and easy reference contains physical property and condensed application data for more than 335 organic chemicals. 1957 edition features 21 new chemicals. Request Bulletin No. F-6136.
218A Carbide & Carbon Chem.

Chemicals.....More than 335 organic chemicals in a 24-p. booklet. Applications are presented and physical properties are given in tabular form. Called "Physical Properties of Carbide & Carbon Chemicals."
218B Carbide & Carbon Chem.

Chemicals.....Company makes available a brochure listing the expanded line of Special & Rare Chemicals. Describes their activities in Industrial, Laboratory & Rare Earth Chemicals.
218C City Chem. Corp.

Chemicals.....Company offers a listing, with brief descriptions, of all its available chemical bulletins. This 4 p. compilation is accompanied by a blank for ordering desired bulletins. Ch-3.
218D Climax-Molybdenum Co.

Chemicals.....Dow's latest general product catalog contains more than 375 basic industrial, agricultural and pharmaceutical chemicals. Includes information on principal product groups.
218E Dow Chemical Co.

Chemicals.....Article by A. T. Loeffler highlights vital role of chemical science and industry in National Defense. Outlines the part FMC Chemical Divisions play in the chemical life of the nation.
218F Food Machy & Chem. Corp.

Chemicals.....22 p. booklet lists company's line of industrial chemicals and pictures many of its facilities. Products include electroplating salts, fluorides, vinyl stabilizers. Send for your copy.
218G Harshaw Chemical Co.

Chemicals.....Bulletin covers aliphatic derivatives (saturated hydrocarbons, olefins, chlorides, etc.); sodium derivatives (sodium methylate, sodium isopropylate); alkenyl succinic acid anhydrides.
218H Humphrey-Wilkinson.

Chemicals.....Products Catalog covers agriculture and horticulture fungicides, food and beverage chemicals, industrial fungicides, intermediates, stearates, pharmaceuticals, foam and wetting agents.
218I B. L. Lemke & Co.

Chemicals.....Lists over 4,000 chemicals manufactured and distributed by this company. Included material on fine organics, inorganic reagents, indicators. Also provides information on certified biological stains.
218J Matheson, Colman & Bell.

Chemicals.....8 p. leaflet, "Neville Products to Make Your Products Better" covers company's full line of chemicals & contains data on the solubilities & compatibilities of Neville Resins. Request copy.
218K Neville Chem. Co.

Chemicals....."Industrial Chemicals" contains full information on company's basic industrial products. Lists uses, physical and chemical properties, handling advice, etc. Request your copy.
218L Nitrogen Div. (AC&D)

Chemicals.....4 p. brochure describes a line of defoamers, soluble lubricants, resin and wax emulsions, water soluble resins, emulsifiers, detergents, wetting and dispersing agents, surfactants, metallic soaps.
218M Nopco Chemical Co.

Chemicals.....Bulletin covers the Morningstar-Paisley family of related products—starches, dextrans, adhesives, chemical products. Gives good perspective of rapidly developing field of liquid adhesives.
218N Paisley Products.

Chemicals.....Facilities and experience of Truland may be used for the economical upgrading and disposal of solvent mixtures and organic by-products. Booklet describes company's operation.
218O Truland Chemical Co.

Chemicals, Agricultural.....28 p. book "Shell Agricultural Chemicals" gives general descriptions & information on the use for aldrin, dieldrin, endrin, Nemagon soil fumigant, D-D soil fumigant & allyl alcohol.
218P Shell Chem. Corp.

Chemicals, Fine & Industrial.....Company offers comprehensive price schedule for fine and industrial chemicals. Also includes a price schedule for electronic chemicals, definition of grades & F.O.B. points.
218Q J. T. Baker Chem. Co.

Chemicals, Furan.....Quaker Oats furan chemicals, such as furfuryl alcohol and tetrahydro furfuryl alcohol, are described in company's Bulletin 201-A. Also discusses their uses. Request a copy.
218R Quaker Oats Co.

Chemicals, Heavy Metal.....Reference File shows heavy metal compounds Baker supplies in tonnage quantities, and quality grades available. Also availability charts of light metal compounds and acids.
218S J. T. Baker Chem. Co.

Chemicals, Industrial.....20 p. booklet describes complete line of Mathieson chemicals for industry. Covers organic, inorganic and specialty chemicals, listing characteristics, grades, containers, etc.
218T Olin Mathieson Chem. Corp.

Chemicals, Molybdenum.....Bulletin gives details which will help industrial users select economical and current convenient starting materials for current molybdenum chemical applications. Bulletin Ch. 27.
218V Climax Molybdenum Co.

Chemicals, Organic.....Company's index for 1957 lists several products for the first time. Include trimethylpropane for making alkyd-based baking enamels, vinyl propionate, Cellulube 300, 550 and 1000.
218W Celanese Corp. of America.

Chemicals, Organic....."The Eastman Organic Chemicals List No. 40" is a 222 p. catalog and price list for more than 3,500 Eastman organic chemicals. Company makes catalog freely available upon request.
218W Eastman Kodak Co.

Chemicals, Organic, Synthetic.....Thirteenth edition of "Synthetic Organic Chemicals" presents properties, specifications, and uses of many products sold by Carbide. Handy manual.
218X Carbide & Carbon Chem.

Chemicals, Paint.....Tamms silica for paints, fillers and enamels; magnesium silicate; china clay and kaolin for pastes and cements; whitening for pottery trades; diatomaceous earth. Prices.
218Y Tamms Industries.

Chemicals, Peroxygen.....Bulletins on hydrogen peroxide, persulfates, sodium perborate, peracetic acid, peroxygen compounds, textile processing, pulp bleaching and miscellaneous chemicals. See ad.
223 *Food Machy & Chem. Corp.

Chemicals, Peroxygen.....Peroxygen chemicals are used in bleaching textiles, modification of carbohydrates, dye oxidation, foam rubber, epoxidation and organic synthesis, etc. Becco Echo.
218Z Becco Chemical Div.

Chemicals, Petroleum.....Olefins are used in production of quality resins for heavy-duty varnishes, in the manufacture of rubber chemicals, germicides, insecticides, dyes and surface active agents. Details.
218AA Atlantic Refining Co.

Chemicals, Rare.....Catalog lists hundreds of rare organic and inorganic chemicals and rare metals for use in research and production. Includes chemicals for electronics research in transistors, etc.
218BB Kern Lab. Supply Co.

Chemicals, Stabilizing.....Bulletin FL 1-42 covers chemical compounds developed for dimensionally stabilizing paper and cellulose. They are said to produce permanently flat photoprints.
218CC Upson Chemical Corp.

Chemicals, Textile.....26 p. booklet features Niatex antistatic AG-2, a new finish for textiles. Also reviews wide variety of products useful as wetting and retarding agents for dyeing. Request Bulletin F-8679B.
218DD Carbide & Carbon Chem.

Chemicals, Textile....."Calgon Data for the Textile Chemist" highlights value of water conditioning in textile industry. Calgon is an essential chemical in preparation & dyeing of textile materials.
218EE Hagan Corp.

Chlorides, Phosphorus.....Company's phosphorus chlorides and phosphorus oxychlorides are extremely versatile intermediates; they are high in quality and purity. Complete details available upon request.
218FF Hooker Electrochem. Co.

Chlorine.....28 p. brochure, "How To Use Pitchlor," covers the use of chlorine as an effective germicide and sanitary agent for practically every type of application. Request your copy at once.
218GG Columbia-Southern Chem.

Chlorine.....Chart describes procedures for unloading tank cars and ton containers, what to do in case of leak, and first aid measures to be followed in the event of exposure to chlorine. Available.
218HH Olin Mathieson Chem. Corp.

- Chlorine**.....Offers technical bulletins: #7—"Liquid Chlorine"; #8—"Alkalies & Chlorine in Treatment of Municipal & Industrial Water"; #11—"Water Analysis"; #14—"Chlorine Bleach Solutions." 219A Solvay Process Div.
- Chlorine Dioxide**.....Booklet discusses bleaching of inedible fats with chlorine dioxides, methods of purifying tallow and other inedible fats and protect them against deterioration, how to determine efficacy. 219B Olin Mathieson Chem. Corp.
- Chlorine, Liquid**.....Presents 72 p. technical and engineering service bulletin, "The Analysis of Liquid Chlorine and Bleach." Literature contains valuable data, tables, charts and indexes. Bulletin No. 12. 219C Solvay Process Div.
- Chlorobenzenes**.....Data sheets give complete lists of physical and chemical properties of monochlorobenzene, ortho- and para-dichlorobenzene, trichlorobenzene and 1, 2, 3, 4, 5-tetrachlorobenzene. 219D Hooker Electrochem. Co.
- Clays**.....2-p. data sheet on clays for rubber and latex applications. For a line of water-fractionated clays, gives typical analyses, uses, comparative data. Some products covered: Silica as SiO₂, aluminum Al₂O₃. 219E Harwick Standard Chem. Co.
- Coagulant Aids**.....4 p. bulletin describes coagulant aids for use in municipal and industrial water clarification and waste water treatment systems includes several case histories. 219F Hagan Chem. & Controls.
- Coal Chemicals**.....The 1957 edition of this company's chemical index contains a short description of all chemicals produced by the company listed alphabetically and according to classes. 219G Reilly Tar & Chem. Corp.
- Colloids**.....4 p. bulletin lists 44 colloidal and semicolloidal dispersions of graphite, molybdenum, disulfide, mica, vermiculite, zinc oxide, acetylene black, copper and glass. 219H Acheson Colloids Co.
- Colloids**.....Bulletin covers amount to use; how to put into solution; storage conditions. The information in this bulletin is intended to be only general. More details are available on request. Bulletin 42. 219I Seaplant Chem. Corp.
- Coloring Agents**.....12 p. brochure describes company's line of vegetable coloring in the yellow-to-orange range offered commercially in both water soluble and oil soluble types. 219J S. B. Penick & Co.
- Colors, Dry**.....Bulletin covers organic dry colors and inorganic dry colors (Cadmium and Iron Oxide). Recommended for applications requiring maximum heat and light stability. Request Bulletin 02-175-3-7-56. 219K Harwick Standard Chem. Co.
- Colors, Polyethylene**.....Bulletin describes Stan-Tone GPE (granular polyethylene) Colors. Colors are compatible with polyethylene, vinyl & rubber. Includes color composition. Bulletin 02-134-2-6-56. 219L Harwick Standard Chem. Co.
- Columbium**.....4 p. booklet describes properties and applications of company's Shieldalloy columbium metal, columbium carbide, columbium oxide, tantalum metal, tantalum carbide and tantalum oxide. 219M Shieldalloy Corp.
- Coolant-Dielectric**.....OS-45, silicate ester-based fluid, has been used for low-temperature cooling of electronic equipment in aircraft. Properties and characteristics described in bulletin 0-123. 219N Monsanto Chemical Co.
- Corn Products**.....The advantages of using a corn adjunct concentrate to replace dry cereal adjuncts in the brewing of beer are detailed in a booklet of 8 p. Outlines suggested methods of use. 219O Corn Products Sales Co.
- Corrosion Inhibitors**....."Armour Organics for Increased Oil Production," 22 p. booklet, covers the application of polar cationic chemicals in both primary and secondary oil production. 219P Armour & Co.
- Corrosion Inhibitors**.....2 p. data sheets describes company's Nalco 360, a synergized combination-type corrosion inhibitor for treatment of recirculation cooling tower water. 219Q Nat'l. Aluminate Corp.
- Corrosion Inhibitor**....."New Way to Solve Corrosion Problems," 4 p. describes a corrosion inhibitor said to be effective with ferrous metals, aluminum and magnesium. Request your copy. 219R Virginia-Carolina Chem. Co.
- Coumarin**.....Specification on coumarin and tables listing its solubility in alcohol-water, glycerin-water and propylene-glycol-water mixtures are contained in a new folder. Compound is used for aroma fixing. 219S Monsanto Chemical Co.
- Cuprous Chloride**.....Technical Bulletin 100 describes Bower Brand pure cuprous chloride. Gives formula, specifications, safety precautions, appearance, uses and physical and chemical properties. 219T Henry Bower Chem. Mfg. Co.
- Curing Agents**.....8 p. technical information bulletin No. F-8665A covers amine curing agents for liquid epoxy resins and for epoxy coatings. Information on how to select and apply. 219U Carbide & Carbon Chem. Co.
- Curing Agents, Epoxy Resin**.....Curing agents: diethylene triamine, triethylene tetramine, dimethylamino propylamine, diethylamino propylamine and a alpha-methylbenzyl dimethylamine. Bul. F-8665 219V Carbide & Carbon Chem. Co.
- Cyanomolybdates**.....Company offers a review, by Battelle Memorial Institute, of the more important physical and chemical properties of the cyanide complexes, cyanates and thiocyanates. Bulletin Cdb-11. 219W Climax Molybdenum Co.
- Cyclohexanone**.....Company gives the resin, plastics, coatings and chemical industries a dependable source of supply of Nadone Cyclohexanone. Minimum purity 99.0%. Bul. 1-19 gives properties, uses. 219X National Aniline Div.
- Defoamers**.....2 p. bulletin describes a liquid defoamer and its application in latex paints, coating and resin sizing of papers, textile sizing, metal cleansers, starch and protein adhesives. 219Y Air Reduction Chem. Co.
- Defoamers, Silicon**.....Dow Corning "Antifoam B" disperses immediately in aqueous solutions. No stirring or agitation required. Ready to use & ideal for continuous processing. Particulars, sample. 219Z Dow Corning Corp.
- Degreasers**.....Company offers brochure containing descriptive material on both Permaceal 345 Degreaser and Permaceal 340 Bite. Permaceal 340 Bite is a pre-paint cleaner and wax and silicone remover. 219AA Permaceal Tape Corp.
- Deodorants**.....4 p. booklet describes the development of chemicals and methods of application to eliminate objectionable malodors from animal experimental laboratories. Two types of masking agents. 219BB Rhodia, Inc.
- p,p'-Diaminodiphenylmethane**.....Literature covers information on purity, physical properties (appearance, melting point, specific gravity) and solubility of p,p'-Diaminodiphenylmethane (Tonox D). 219CC Naugatuck Chem.
- Diatomaceous Silica**.....46 p. booklet, "Flattening Agents, Pigment Extenders, Filter Aids for the Finishes Industry" contains 41 paint formulas collected from various raw material manufacturers. 219DD Johns-Manville.
- Dichlorophene**.....Company offers a complete revised bibliography of the literature on G-4 (Dichlorophene). Contains abstracts of scientific trade articles & of foreign & domestic patents. Bulletin D-2. 219EE Sindar Corp.
- Disocyanate**.....6 p. of detailed data on dimethyldiphenylmethane. Covers structural formula, analysis, properties and suggested uses. Includes infrared spectrogram, vapor pressure curve. 219FF Allied Chem. & Dye Corp.
- Disocyanates**.....Technical Bulletin I-17, 24 p. discusses typical reactions and suggested uses of company's line of disocyanates. Includes a comprehensive bibliography with 132 entries. 219GG Allied Chem. & Dye Corp.
- Disocyanates**.....Application data on principal urethane uses being developed for Naconates users, including practical starting formulas, test data, & use results. For product data, Bulletins I-17 to I-17E. 219HH National Aniline Div.
- Di-Iso-Octyl Phthalate**.....A high boiling stable liquid of low viscosity which has resistance to ultra violet light. Performance data of DIOP in PVC, properties, etc. in Technical Service Bulletin E-7. 219II Witco Chem. Co.
- Dimethyl Sulfide**....."Properties and Suggested Uses of Dimethyl Sulfide," 4 p., describes lignin-derived dimethyl sulfide which may be used as a basic chemical or intermediate, solvent, etc. 219KK Crown Zellerbach Corp.

New Chemicals & Raw Materials

Literature Available

Diphenylamine—
Flavors

Diphenylamine.....Diphenylamine is used in the manufacture of rubber anti-oxidants, smokeless powder, dyestuffs. Other applications are: paper sizing, fuel additive, carotene stabilizer. Details & sample.
220A American Cyanamid Co.

Dispersants, Liquid.....Bulletin gives physical properties of Surfynol TG, liquid nonionic dispersant for emulsion paints. Gives formulations for polyvinyl acetate, acrylic & butadiene-styrene systems.
220B Air Reduction Chem. Co.

Dispersions, Calcium Stearate.....Describes a chemical product which improves processing properties & characteristic of coating formulations for machine coated papers. Technical Service Bulletin M-15.
220C Witco Chem. Co.

Dispersions, Carbon Black.....Technical service bulletin describes a procedure for the direct determination of the degree of carbon black dispersion in polyethylene masterbatches. Request your copy.
220D Godfrey L. Cabot, Inc.

Dispersions, Colloidal.....Brochure gives a compilation of current good practice in high-temperature lubrication with colloidal dispersions. Company makes their Bulletin 423 available on request.
220E Acheson Colloids Co.

Dodecene Oxide.....Bulletin gives structure, typical properties and chemical reactivity of dodecene oxide. Lists a number of suggested uses as intermediate, solvent and specialty chemical. Bulletin No. 73.
220F Becco Chem. Div.

Dyes, Vat.....Controlled particle size brings greatly improved working properties to each dye and highest quality end-results to each application. Company furnishes Bulletin and samples on request.
220G American Cyanamid Co.

Elastomers.....Neoprene and Hypalon elastomers are used in improving products and cutting maintenance costs. Request copies of "Neoprene Notebook" and "Facts about Hypalon."
220H E. I. du Pont de Nemours.

Elastomers.....Neoprene and Hypalon elastomers are used in improving products and cutting maintenance and replacement costs. Full details available in publication "The Du Pont Elastomers."
220I E. I. du Pont de Nemours.

Elastomers....."Hypalon", a synthetic rubber, has excellent chemical resistance and is useful in valve sleeves, hoses, linings, etc. Neoprene resists chemicals, heat, light. *Elastomers Notebook*.
220J E. I. du Pont de Nemours.

Elastomers, Carboxylic.....16 p. bulletin describes Hycar 1072X3. Includes tables of Geon & phenolic resin blends, Hycar 1072X3-phenolic resin cements, curing systems, plasticizers, etc. Bul. H-21.
220K B. F. Goodrich Chem. Co.

Electrochemicals.....Series of informational product bulletins cover sodium and potassium chlorate, ammonium and potassium perchlorate and manganese dioxide. Analysis, description.
220L American Potash & Chem.

Electrodes & Powders, Spectroscopic.....Catalog discusses initial purity obtained through intensive purification processes during manufacture, and maintenance of purity by protective packaging. Cat. A-4004.
220M National Carbon Co.

Emulsifiers.....Describes Witco DGO, a diethylene glycol oleate (diglycolate) for emulsifying latex & resin emulsion paint systems. Outlines detailed typical properties. Technical Service Bulletin H-3.
220N Witco Chem. Co.

Emulsifying & Anti-Foaming Agents.....Applications in paint, cosmetics, metal working, plastics, textile, etc., industries for Witco DGL (a diethylene glycol mono laurate), in Bulletin No. H-2.
220O Witco Chem. Co.

Emulsion Polymers.....Technical bulletins have been issued which describe properties and uses of vinyl acetate emulsion polymers, company's Vikon QL and RL, and emulsion copolymer Vikon FPB.
220P Vikon Chemical Co.

Emulsion Anionic.....Hydrocarbon emulsion features high melting point of emulsion solids and wide pH stability. Used as co-binder for latex paints, clay coatings etc. Bulletin available.
220Q Penn. Industrial Chemical.

Emulsions, Copolymer.....Booklet is a compilation of the work done with copolymer emulsions and their adaptation for paint use. Describes National's 12K series of Resyns. Available upon request.
220R National Starch Products.

Emulsions, Paint.....Bulletin covers physical properties, chemical and physical data, compounding properties, types of emulsions, formulations, instructions for use and trade names. Form G101.
220S Shawinigan Resins Corp.

Emulsions, Piccopale A-1.....Bulletin discusses 10 outstanding properties of Piccopale A-1 Emulsion, a low-cost quality-improving modifier for rubber-base paints. Available on request.
220T Pa. Industrial Chem. Corp.

Emulsions, Polyvinyl Acetate.....Bulletin describes methods of shipment, storage tanks, piping and costs of polyvinyl acetate emulsions. Details in Bulletin PVB No. 522.
220U Colton Chemical Co.

Emulsions, Polyvinyl Acetate.....Gelva Series KR Emulsions are dispersions of thermoplastic resin in water, used for textile finishing. Booklet gives properties, applications, formulations.
220V Shawinigan Resins Corp.

Enzymes.....24 pg. pamphlet enumerates the uses of the versatile enzyme "Papain" in industrial, medicinal and veterinary fields. Contains information on stability, assay, & chemistry.
220W S. B. Penick & Co.

Epoxyes.....Describes this company's service in custom molding epoxy products. Covers compression and transfer techniques available for custom molding of electronic and chemical resistant products.
220X Epoxy Products, Inc.

Epoxy Hardener Technical bulletin 13, 2 p., describes good heat distortion temperatures, toughness and flexibility of resins cured with agent that combines with liquid epoxyes at room temperature.
220Y Smooth-On Mfg. Co.

Epoxy Potting Compounds.....3 p. technical bulletin covers a series of epoxy potting compounds. Time-viscosity curves, comparative table of electrical, mechanical and physical properties.
220Z Houghton Laboratories Inc.

Epoxy Resins.....28 p. booklet discusses epoxy resin compounds designed for the electrical and electronics industry. Features tabulations of physical and electrical properties for nine potting resins.
220AA Epoxylite Corp.

Epoxy Resins.....Bulletin EP-56-65 describes a plastic material which can be cast in any thickness yet is said to possess the lowest shrinkage of any cast epoxy manufactured to date.
220BB Furane Plastics Inc.

Epoxy Resins.....Bulletin covers solventless single component epoxy resin compound having exceptionally high heat distortion. It was developed for use in rotating field coils.
220CC Sterling Varnish Co.

Essential Oils.....12 p. brochure lists wholesale prices on company's essential oils and other products including aromatic chemicals, fixatives, colors, balsams gums, sundries, etc.
220DD Fritzsche Bros., Inc.

Esters, Maleic.....Technical information includes physical properties, net container contents, copolymerization information, textile applications, miscellaneous reactions, & availability. Bulletin F-7354.
220EE Carbide & Carbon Chem.

Esters, Methyl.....These methyl esters are readily available from the El Dorado Div.—caprylate, Eldo 18, caprate, laurate, coconate, myristate, caproate, palmitate. Details available and samples offered.
220FF Foremost Food & Chem.

Ethanolamines.....Two plants—South Charleston, West Virginia and Seadrift—will supply you with ethanolamines. "Nitrogen Compounds" discusses applications, physical properties, and specifications.
220GG Carbide & Carbon Chem.

Ethanolamines.....Company makes available samples, quotations and literature on Ethanolamines. Includes information on uses, physical properties tables & graphs, etc. Complete details upon request.
220HH Nitrogen Div., AC&D.

Ethers & Oxides.....Ethers & oxides for chemical syntheses, extraction processes, photographic films, smokeless powder, insecticides, industrial fumigants, denaturants, reaction media. Bulletin F-4764A.
220II Carbide & Carbon Chem.

1957 INVENTORY

Ethyl Silicate.....Company manufactures and markets three commercial grades of ethyl silicate: tetraethyl orthosilicate, condensed ethyl silicate and ethyl silicate 40. Company supplies details in Bulletin F-8265A.
221A Carbide & Carbon Chem.

Ethylene Amines.....8 p. bulletin No. F-8163A tabulates physical properties and specifications of ethylene amines. Describes their application in agriculture, chelating, polyamides; textile.
221B Carbide & Carbon Chem. Co.

Ethylene Oxide 8 p. brochure describes process developed for the production of ethylene oxide by the direct air oxidation of ethylene. A complete flow diagram is presented. Copies available upon request.
221C Scientific Design Co.

Fertilizers....."Use of Commercial Fertilizers—Particularly Nitrogen—in Forestry" by Hermann Mayer-Krapoll. 111-p. booklet discusses experiences with such practices as fertilizing plantings, pole trees.
221D Allied Chem. & Dye Corp.

Fertilizer....."Chemical Fertilizers for Canada's West", 16 p. brochure describes the engineering and construction of Northwest Nitro-Chemicals Co. Ltd.'s fertilizer plant in Medicine Hat, Alberta.
221E M. W. Kellogg Co.

Fibers.....Information on the processing, carding, drawing, roving, spinning, plying, winding, and coning of Arnel and Arnel blended yarns. Properties of spun Arnel yarn listed in Technical Bulletin TD-14A.
221F Celanese Corp. of America.

Fibers, Textile....."Comparative Chemical Resistance of Fibers" reports on studies at North Carolina State College. Tables show effects of exposure of fibers to over ten corrosives. Bulletin X-48.
221G Du Pont Co.

Fillers.....Data sheet covers types and grades of walnut shell flours available for use in fillers, extenders and air blast cleaning. Discusses such properties as proper screen sizes, moisture content, etc.
221H Harwick Standard Chem. Co.

Fillers.....Describes a line of flocking and filler types of material made from reclaimed waste, cotton material, controlled in length and moisture contents. Uses, advantages, packing of various grades discussed.
221I Harwick Standard Chem. Co.

Fillers, Mineral.....Micro-Cel absorbs up to 6 times its weight in water, remains a free-flowing powder even after absorbing twice its weight in liquids. Company offers data and samples of Micro-Cel.
221J Johns-Manville Co.

Finishes, Antistatic.....Technical information describes a durable type antistatic finish for textiles, "Nia-tex" Antistatic Ag-2. Includes application procedures, physical properties, etc. Bulletin F-40021.
221K Carbide & Carbon Chem.

Flavors.....Called "The Changing World of Food", 36 p. booklet surveys the newer aspects of the food industry with particular emphasis on the part played by flavors and seasonings in the total picture.
221L Dodge & Olcott, Inc.

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X Paper Converters use it as a hot melt and are enthusiastic about the low-cost quality coating it offers. Grease resistance, scuff resistance and single feed to automatic machines are other advantages!

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MONOSODIUM PHOSPHATE (MKP), ANHYDROUS
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PHOSPHATIC FEED SOLUTION (P.F.S.)
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Powder or Granules.
TETRASODIUM PYROPHOSPHATE (TSPP), ANHYDROUS
Powder or Granules.
TETRASODIUM PYROPHOSPHATE CRYSTALS (TSPP-10H₂O)
TRIPOTASSIUM PHOSPHATE (TKP)—Granules.
TRISODIUM PHOSPHATE (TSP), ANHYDROUS—Powder or Granules.
TRISODIUM PHOSPHATE MONOHYDRATE (TSP-H₂O)—Granular.
TRISODIUM PHOSPHATE HEMIHYDRATE (TSP-½H₂O)—Granular.
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industrial sulphur • ORIO-APEX® glass-ceramics and resins • WESTVACO® alkalis, solvents, phosphates, barium and magnesium chemicals

Literature Available

Flavors—
Hexachlorophene

Flavors....."Pharmaceutical Flavor Guide" catalogues flavors developed for and proven adaptable to the flavoring requirements of modern pharmacy. Lists more than 200 different flavoring suggestions.
223A Fritzche Bros.

Flocculant, Selective.....A selective flocculant for ore refiners is said to precipitate dissimilar particles suspended in aqueous mixtures when only 0.002% by weight is added. TD 1248.
223B U. S. I. Chemicals Co.

Flocculating Agent.....Two technical manuals describe uses for Separan 2610, high speed flocculating agent... "Separan 2610 in the Pulp and Paper Industry" and "Separan 2610 in the Coal Industry."
223C Dow Chem. Co.

Fluorides.....Harshaw fluorides serve many industries. Their top ranking is the result of rigidly controlled uniformity and quality. Request Harshaw's book on hydrofluoric acid anhydrous.
223D Harshaw Chemicals Co.

Fluorine.....Fluorine has been tamed and harnessed by General Chemical for industrial use... by anyone, anywhere... without requiring captive plant facilities. Request your copy of "Fluorine."
223E General Chemical Div.

Fluorine Compounds.....Data sheets cover fluorine compounds produced in pilot plant quantities. These include mono-, di-, and hexafluorophosphoric acid, sodium monofluorophosphate, stannous fluoride.
223F Ozark-Mahoning Co.

Fluorocarbon Products.....Booklet covers entire family of KEL-F fluorocarbon products—plastics, dispersions, oils, waxes, greases, elastomers, printing inks and chemicals. Request your copy.
223G M. W. Kellogg Co.

Formaldehyde.....High purity 50% and 37% formaldehyde available from du Pont Methylene (-CH₂-) group functions as "chemical button" to link similar or dissimilar molecules. Details.
223H E. I. du Pont de Nemours.

Formaldehyde.....Technical bulletin, "Formaldehyde," summarizes properties and uses of this important, versatile organic intermediate. Covers safe handling, materials of construction, storage and analysis.
223I Heyden Chem. Corp.

Formaldehyde.....Allied produces the basic raw material, methanol, at the same plant where the formaldehyde is made. Therefore, you can be sure of steady supply and purity. Details on delivery, prices, services.
223J Nitrogen Div., AC&D.

Formaldehyde Solutions.....Celanese Formcels are low water content formaldehyde solutions in a variety of alcohols. Useful as organic chemical intermediates, for resin condensation reactions. Bul. S-23-5.
223K Celanese Corp. of America.

Fuel Oil Treatment.....Disintegration and dispersal of sludge in fuel-oil storage tanks and equipment is discussed in Bulletin FO-157. Sludge becomes combustible and water is emulsified.
223L North American Mogul Prod.

Fungicide....."Fungitrol 50 For Colorless Non-Toxic Cordage Preservation" discusses a fungicide, a synergistic mixture containing zinc, which can be used from both water and solvent systems.
223M Heyden Newport Chem. Co.

Fungicide.....Pentachloronitrobenzene, a fungicide recommended for control of a number of crop diseases, is described in a technical bulletin. Products come in various commercial formulations.
223N Olin Mathieson Corp.

Furfural.....28 p. booklet covers furfural, furfuryl alcohol, tetrahydrofurfuryl alcohol, Furafil lignocellulose, furoic acid, hydrofurfamide. Includes information on application, properties, shipping, handling.
223O Quaker Oats Co.

Furfural.....Furfural: selective solvent for refining petroleum fractions and rosins; extractive distillation agent for hydrocarbon separations; reactive solvent for many resins. See Bulletin No. 204.
223P Quaker Oats Co.

Gases, Compressed.....Company announces Catalog & price list of compressed gases & gas regulators. Includes special gas mixtures for instrument calibration, nuclear flow counters, furnace atmospheres, etc.
223Q Matheson Co.

Gelling Agents.....(For oil well treating). Specially compounded salts (soaps) of fatty acids which have the ability to gel petroleum hydrocarbon solvents at room temperature. Technical Service Report G-4.
223R Witco Chem. Co.

Glue.....Fortifier for conventional urea resin liquid wood glue is described in Bulletin TD-45. Product is particularly suited to "moderate" exterior applications such as protected doors.
223S Borden Co.

Glutaraldehyde.....4 p. technical bulletin F-40005A on glutaraldehyde (pentanedial) discusses properties, shipping data, applications, reactions and physiological properties.
223T Union Carbide Chem. Co.

Glycerine.....19 p. booklet, "Glycerine—Terms, Tests, Technical Data," describes commercial grades, definitions, specifications, test methods, and shipping and storage requirements of glycerine.
223U Glycerine Producers' Assoc.

Glycerine.....Company offers: 20 p. "Glycerine Alkyls Tailored to Need," 8 p. "Federal Specifications for Glycerine," 20 p. booklet on Glycerine properties and applications. Request copies.
223V Glycerine Producers' Assoc.

Glycerine....."Glycerine Properties and Uses" describes the chemical and physical properties and the many diverse industrial applications of glycerine. Request this handy reference.
223W Glycerine Producers' Assoc.

Glycol Carbonates.....Technical information on physical properties, solubilities, applications, chemical properties, reactions & physiological properties for several glycol carbonates. Bulletin F-8307.
223X Carbide & Carbon Chem.

Glycol Solutions.....Use of glycol solutions in steam-set printing inks is described in a technical bulletin. Details the principle of steam setting and water tolerance, properties of glycol solutions.
223Y Archer-Daniels-Midland Co.

Glycols.....Booklet, "Glycols", a summary of Carbide's glycols, is a handy reference for people in the chemical industry. Includes physical property charts, specifications & test methods, etc.
223Z Carbide & Carbon Chem.

Glycols.....Company offers data on ethylene glycol (F-8327), diethylene and triethylene glycol (F-8327) and Glycols Booklet (F-4763). Available in various specification grades. Request copies.
223AA Union Carbide Chem. Co.

Glycols.....Diethylene glycol and triethylene glycol are discussed in a 16 p. bulletin F-8085. Data on physical and physiological properties, specifications, shipping containers, uses. Request a copy.
223BB Union Carbide Chem. Co.

Glycols, Polyethylene.....48 p. illustrated catalog describes "Carbowax" Polyethylene Glycols, their physical properties, industrial applications, shipping data, specifications, etc. Catalog F-4772B.
223CC Carbide & Carbon Chem.

Graphite.....4 p. catalog section S-5050 contains a large table recommending the grade of company's impervious graphite and resin base cement to be used in a wide variety of commercial applications.
223DD National Carbon Co.

Greases.....Bulletin on "Sun N-52X Grease", a stable, high-melt-point grease for bearings at temperatures up to 250 F, or for sealed antifriction bearings used at normal temperatures. Bulletin 47.
223EE Sun Oil Co.

Greases.....Two water-resistant extreme-pressure greases especially recommended for shock-loaded bearings are described in Sun Technical Bulletin 49. Made available by the company upon request.
223FF Sun Oil Co.

Gum Arabic.....Laboratory reports A-820-G2 and A-820-G3 contains data on the preparation of clear solutions from various types of gum Arabic. Of interest to users of the products as emulsifier, coating.
223GG Morningstar, Nicol, Inc.

Gum, Synthetic.....A synthetic gum is said to be an excellent binder that dissolves in water or alcohol to give non-viscous solutions. Self-active as a bactericide or germicide. TD 1288.
35-61 *U. S. Industrial Chem. Co.

Hexachlorophene.....Supplement to Technical Bulletin H-1 entitled "G-11 (Hexachlorophene USP) An Annotated Bibliography" includes abstracts of 28 recent articles and one patent.
223HH Sindar Corp.

Literature Available

Hexylene Glycol—
Lubricants

Hexylene Glycol......Hexylene glycol can be used as a coupling agent, penetrant, humectant, dispersant, wetting agent, high-boiling solvent, etc. Send for a copy of Technical Booklet SC-50-1.
2 *Shell Chemical Corp.

Hydraulic Fluids......Booklet F-40134 discusses advantages and limitations of water-base, fire-resistant hydraulic fluids. Complete information use and maintenance. Gives laboratory test results.
224A Carbide & Carbon Chem.

Hydrazine Derivatives......Hydrazine dihydrochloride, hydrazo dicarbonamide and monohydrazinium phosphate, all white crystalline solids, are available in laboratory lots. Data bulletins available.
224B Olin Mathieson Chemical.

Hydrocarbon, Hard......56 p. reference, "Witco Hard Hydrocarbon (M.R. #38) in Natural and Chemical Rubbers," includes information on properties, mixing and testing procedures. Bulletin 51-1.
224C Witco Chem. Co.

Hydrocolloids......8 p. about Irish Moss and its extractives. Information on these hydrocolloids includes: what they are, what they can do for you, listing of properties like water viscosity.
224D Seaplant Corp.

Hydrogen Peroxide......Describes various applications of hydrogen peroxide as a propellant, includes tables, graphs showing physical properties of 90% H₂O₂, apparent pH readings, etc. Bulletin 77.
224E Becco Chem. Div.

Hydrogen Peroxide......"Albone" hydrogen peroxide and "Albone" bleaching solutions are applied usually by spraying, although brushing, wiping or dipping, are sometimes used. Product literature.
224F E. I. du Pont de Nemours.

Hydrogen Peroxide......Describes various applications of hydrogen peroxide as a propellant, includes tables and graphs showing physical properties of 90% H₂O₂, apparent pH readings, etc. Bul. 77.
224G John Mather Lupton Co.

Hydrolubes......Advantages of Ucon Hydrolubes: corrosion resistance, wear resistance, fire resistance, no effect on packings or seals, shear stability, low leakage losses, safe to handle. Bulletin F-40134.
224H Carbide & Carbon Chem.

Industrial Cleansers......Catalog page describes a waterless hand cleaner and two protective hand creams for industrial workers. One cream counters kerosene, paints; the other guards against acids, bases.
224I Boyer Campbell Co.

Inhibitors, Chemical......Nalco 889, chemical inhibitor, reportedly cuts corrosion rates 94% or more by forming a tough, corrosion-resistant protective film on metal surfaces. Details in data sheet.
224J National Aluminate Corp.

Inhibitors, Corrosion......A discussion of the possible use of slightly soluble molybdates in white & tinted inhibitive paints. A simplified procedure for estimating corrosion inhibition. Bulletin Ch-25.
224K Climax Molybdenum Co.

Inhibitors, Corrosion......Company offers a comparative study of corrosion inhibition by molybdates, tungstates, chromates and nitrites. Full details available. Request Bulletin Ch-24.
224L Climax Molybdenum Co.

Inks......Electronically heat-sealable vinyl gravure inks in a wide range of colors are being produced. Prints for automotive upholstery have been heat-sealed without arcing. TD 1283.
35-6d *U. S. Industrial Chem. Co.

Intermediate......For Acrolein dimer (2-formyl-3, 4-dihydro-2H-pyran), physical properties, shipping data, chemical properties, reactions and physiological properties are discussed in 8 p. bulletin F-8516A.
224M Union Carbide Chemicals Co.

Intermediates......HET Anhydride can be used to form salts with many metals, to form esters & amides, to cure & harden epoxy resins & to form condensation polymers. Request Bulletin 43.
224N Hooker Electrochem. Co.

Isophthalics......Brochure includes complete descriptions and detailed specifications of company's isophthalic acid alkyls. Covers an unusual short oil alkyl which uses many raw materials.
224O Reichhold Chemicals, Inc.

Isotopes......Company announces literature describing in detail their services and facilities. Isotope measurement, fall-out studies, and radiocarbon dating are some of the services available.
224P Isotope Products.

Isotopes, Stable......Company offers a revised stable isotopes inventory and price list. Complete details of the sales and loan policy are contained in the Stable Isotopes Catalog. Catalog F-80001.
224Q Union Carbide Nuclear Co.

Ketones......Bulletin discusses ketones and covers: physical properties, constant boiling mixtures, shipping data, specifications and test methods and storage handling. Bulletin available upon request.
224R Carbide & Carbon Chem.

Lanolin......A 24-page brochure on lanolin reviews industrial origins of this wax, its cosmetic and pharmaceutical uses as emollient and emulsifier. Guide formulations are included. TD 1247.
224S U. S. I. Chemicals Co.

Lanolin Derivative......A hydrophobic lanolin derivative with good solubility and solubilizing properties is said to be valuable for aerosols, shampoos, suntan and sunscreen preparations. 1289.
35-6j *U. S. Industrial Chem. Co.

Latex......Newsletter describes Hycar 4501 Latex, its stabilizers & their effect on physical properties, foaming properties, effects of thickeners on viscosity & greaseproof coatings of blended Hycar Latexes.
224T B. F. Goodrich Chem. Co.

Latex......16 p. bulletin C-6-239T describes a fortified styrene-butadiene copolymer latex for paper coating. Data on mechanical stability, compatibility with starch and dextrin, stability to pigments.
224U Koppers Co.

Latex......20 p. booklet describes centrifuged natural hevea latex, product of British Malaya, and its processing in this company's plants. Photographs cover the whole route, from tree to shipment.
224V Stein, Hall & Co.

Latex Paint......"Studies on the Influence of Wet Ground Mica on the Adhesion Characteristics of Latex Paint", Technical Bulletin No. 28, makes tabular comparisons of performance of plants.
224W Wet Ground Mica Assn.

Latex......21 p. illustrated "Geon" Latex bulletin gives a general summary of the properties, compounding, handling and storage methods, and applications for Geon latexes. Bulletin No. L-7.
224X B. F. Goodrich Chem. Co.

Lauryl Chloride......A complete breakdown on the physical and chemical properties of both the Technical and Refined Grades, which are both mixtures of n-alkyl chlorides ranging from C₁₀ to C₁₄.
224Y Hooker Electrochem. Co.

Lithium......16 p. booklet defines a range of lithium chemicals in terms of their properties and unique aspects. Such uses as automotive greases, ceramics, air conditioning are discussed.
224Z American Lithium Inst.

Lithium......15 p. tabbed booklet describes properties, uses, research potentials and availability of lithium and its unique compounds. Discusses function of lithium in industry institute.
224AA American Lithium Institute.

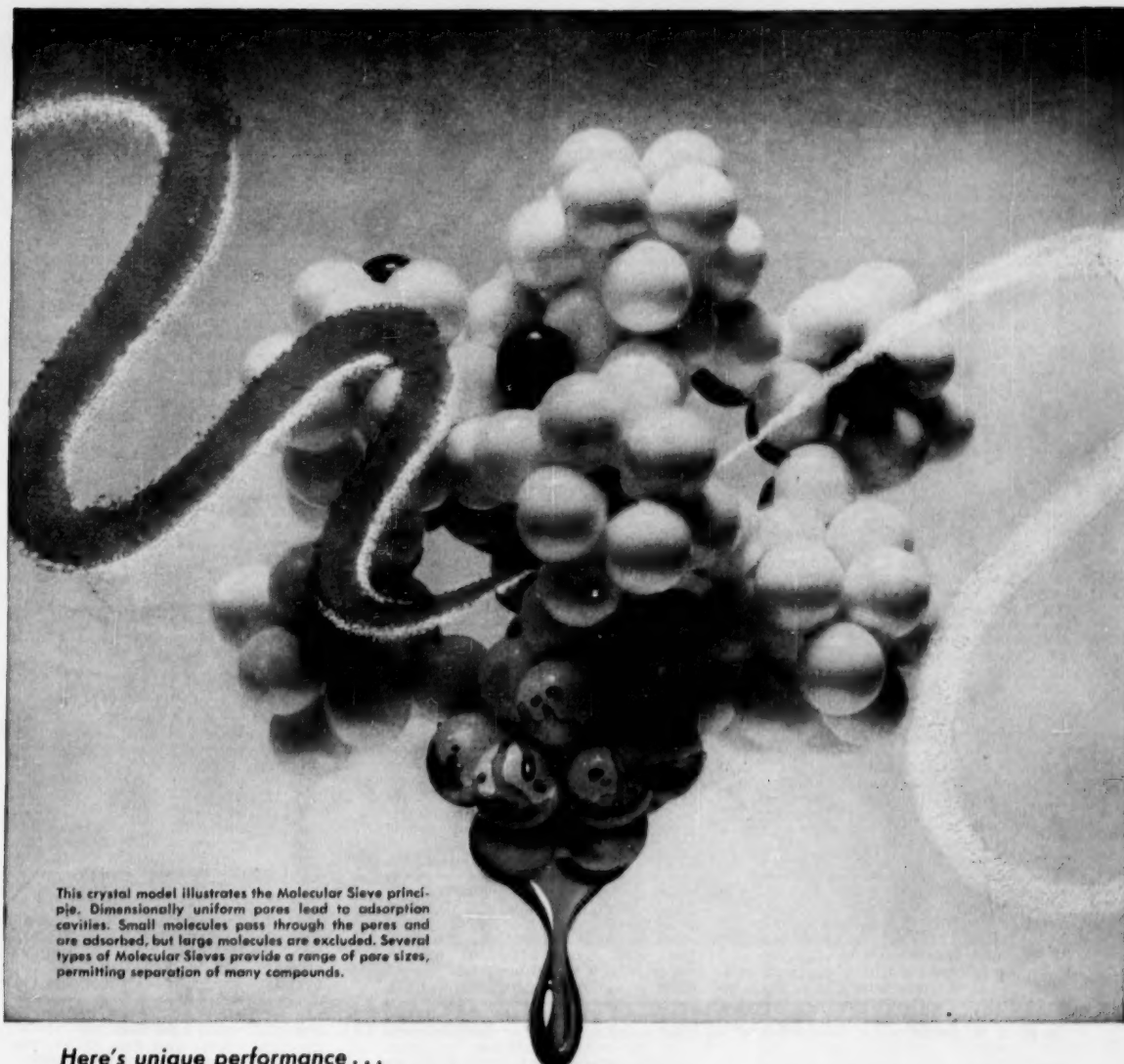
Lithium Aluminum Hydride......A specific agent for numerous organic reductions. Reference gives composition, properties, solubility, applications, typical reductions, handling. Bul. 401-D.
224BB Metal Hydrides.

Lithium Compounds......"Chemical and Physical Properties of Lithium Compounds" presents reliable information on 18 compounds of lithium. Compiled and augmented by much data now being developed.
224CC Foote Mineral Co.

Lithium Compounds......Data sheets cover properties and applications of a range of lithium compounds including, lithium bichromate, dihydrate; lithium bromide; lithium carbonate.
224DD Foote Mineral Co.

Lithium Metal Dispersions......Data Sheets describe methods for laboratory preparation of lithium metal dispersions in such dispersing mediums as mineral oil, petroleum and wax. Available on request.
224EE Lithium Corp. of America.

Lubricants......"Fluorolube", a high-density addition polymer of trifluorovinyl chloride, comes in grades ranging from low-viscosity oils to opaque greases. Completely nonflammable. Data file.
224FF Hooker Electrochem. Co.



This crystal model illustrates the Molecular Sieve principle. Dimensionally uniform pores lead to adsorption cavities. Small molecules pass through the pores and are adsorbed, but large molecules are excluded. Several types of Molecular Sieves provide a range of pore sizes, permitting separation of many compounds.

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olefins... or extraction of olefins from refinery streams and top gases... or simultaneous dehydration and sweetening of natural gas... and many, many others.

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Literature Available

Lubricant—
Nitroparaffins

Lubricant.....Discusses the properties of a fire-resistant fluid lubricant developed specifically as a lubricant for air compressors. Instructions for the conversion of compressors to the use of the fluid.
226A Monsanto Chemical Co.

Lubricants.....Bulletin V-220, Rev. 1, called "Lubricants for Rockwell-Nordstrom Valves" provides 12 p. of detailed lubricant selection data including information on about 80 new lubricants.
226B Rockwell Mfg. Co.

Lubricants, Mold.....Lubri-Flo, a powerful mold lubricant, can be used on white or light-colored stocks, as well as on brown or black stocks. Gives smooth, dry surface for lacquering. Bul. 11-124-2-5-56.
226C Harwick Standard Chem. Co.

Magnesium Oxide.....Company offers specifications, full information and technical service. Request Magnesium Oxide Brochure for details on high purity, versatile material in several grades.
226D Internat'l. Minerals & Chem.

Mastics.....Role of gilsonite-asphaltic mastics in the corrosion protection of chemical plant, pulp mill, and other industrial installation is described in a 4 p. folder. Covers four basic types of gilsonite mastic.
226E Emjay Maintenance Engrs.

Methionine.....Recent study reports evidence that methionine is beneficial to Vitamin C metabolism and to adrenal gland functioning. Methionine increased the Vitamin C in the adrenal gland of animals.
226F U. S. Industrial Chem. Co.

2-Methyl-5-Ethyl Pyridine.....Bulletin gives information on properties, specifications, shipping data, and applications. Also describes typical reactions of 2-methyl-5-ethyl pyridine. Bulletin F-7621.
226G Carbide & Carbon Chem.

Metal Powders.....2 p. engineering data sheet 53 discusses use of metallizing powder, a material high in chromium and nickel and containing chromium borides, for crankshaft bearing surfaces.
226H Wall Colmonoy Corp.

Methylene Chloride.....Booklet shows advantages of methylene chloride as an aerosol pressure depressant, vapor degreasing solvent, cold cleaning solvent, extraction solvent, secondary refrigerant.
226I Dow Chemical Co.

Methylene Chloride.....Combination of properties, including high solvent power for many organic compounds—both those of non-polar and polar nature. Has many diversified uses. Literature.
226J E. I. du Pont de Nemours.

Methylene Chloride.....Add Solvay methylene chloride to flammable solvents to raise solvent flash points into the safety zone. Non-flammable, low-cost, low-toxicity solvent. Booklet & Sample.
226K Solvay Process Div.

Mica.....Some studies on the moisture sealing characteristics of mica in polyvinyl acetate latex paints for outdoor house use is the subject of the helpful technical bulletin No. 31.
226L Wet Ground Mica Assn.

Mold Release.....A mold release for polyethylene, said to be a relatively inactive parting agent, has been developed to cut down the stress crazing sometimes experienced. TD1255.
226M U. S. Industrial Chem. Co.

Molybdate Orange.....Laboratory data comparing properties of molybdate orange & chrome orange. Includes results of test on light-fastness, hiding power, tinting strength, gloss, etc. Bulletin Ch-22.
226N Climax Molybdenum Co.

Molybdates.....15 p. bulletin covers properties, uses, classification, nomenclature and preparation of heteropolymolybdates. Contains a section on the use of literature on these compounds. Bulletin Cdb-12.
226O Climax Molybdenum Co.

Molybdenum.....Series of bulletins present technical information and case histories on the use of molybdenum as an alloying element in gray iron castings. Bulletin Nos. 1 & 2 in the series are available.
226P Climax Molybdenum Co.

Molybdenum.....Listing, with brief descriptions, of all this company's available bulletins on molybdenum and its compounds. Subjects include chemical data series, agriculture, analysis, ceramics.
226Q Climax Molybdenum Co.

Molybdenum Boride Compounds....."Refractory Molybdenum Borides" describes applications; chemical, physical and mechanical properties; and preparation of molybdenum boride compounds.
226R Climax Molybdenum Co.

Molybdenum Compounds.....Thermodynamics data for molybdenum and its oxides, sulfides, carbides, nitrides, silicides & halides. Includes oxidation-reduction potentials for various reactions. Bul. Cdb-2.
226S Climax Molybdenum Co.

Molybdenum Disulfide....."Breaking Lubrication Barriers," a 16 p. brochure, covers the history and development of a line of molybdenum disulfide lubricants. Includes selection table, application photographs.
226T Alpha Molykote Corp.

Molybdenum Disulfide.....Bulletin covers three year experience with this solid film lubricant in the operation and maintenance department of the Baltimore and Ohio Railroad. Request Bulletin Lu-4.
226U Climax Molybdenum Co.

Molybdenum Disulfide.....1 p. bulletin describes the uses of molybdenum disulfide as a filler in nylon, phenolic laminates, Teflon and other plastics, natural and synthetic rubber and asbestos.
226V Climax Molybdenum Co.

Molybdenum Pigments.....Articles on molybdenum inorganic and organic pigments. Reviews of history, properties, manufacture and uses of molybdate orange and of molybdated toners. Bulletin Ch-12.
226W Climax Molybdenum Co.

Molybdenum Silicides.....Companion publications on molybdenum silicides—Bulletin Cdb-6, entitled "Refractory Molybdenum Silicides;" Bulletin CH-23, "Fabrication of Molybdenum Disilicide Parts."
226X Climax Molybdenum Co.

Molybdic Oxide.....Presents detailed references, "Properties of Molybdic Oxide"—a review of the more important physical and chemical properties of this compound. Request your copy of Bulletin Cdb-1.
226Y Climax Molybdenum Co.

Monomers.....Monomeric compounds listed for reference. Gives properties, check list of applications, current production status. Includes available and research monomers. Bulletin F-8498-C.
226Z Carbide & Carbon Chem.

Monomers.....Folder gives important properties and suggested uses for 36 available monomers. Copolymer and polymer uses, & industries in which monomers are used included. Folder F-40033.
226AA Carbide & Carbon Chem.

Monomers, Acrylic.....Technical notes on dimethylaminoethyl methacrylate list physical properties, toxicity, presence of an inhibitor, polymerization and quaternization of the monomer. Details in Form 20 B.
226BB Rohm & Haas Co.

Monomers, Vinyl Acetate.....20 pg. bulletin gives essential information on physical properties, grades, specifications & handling, details on polymerization & chemical reactions. All data fully referenced.
226CC Air Reduction Chem. Co.

Niacin.....Folder gives general description of the applications of niacin for human nutrition, plant nutrition, animal nutrition, and for formulation of B-complex vitamin tablets. Bul. T-102-56.
226DD Koppers Co.

Nitrate of Soda.....Your choice of three crystal sizes—coarse (1-C), medium (2-B) and fine (3-A). Select the one that suits your operation and save on processing and handling. Literature.
226EE Allied Chem. & Dye Corp.

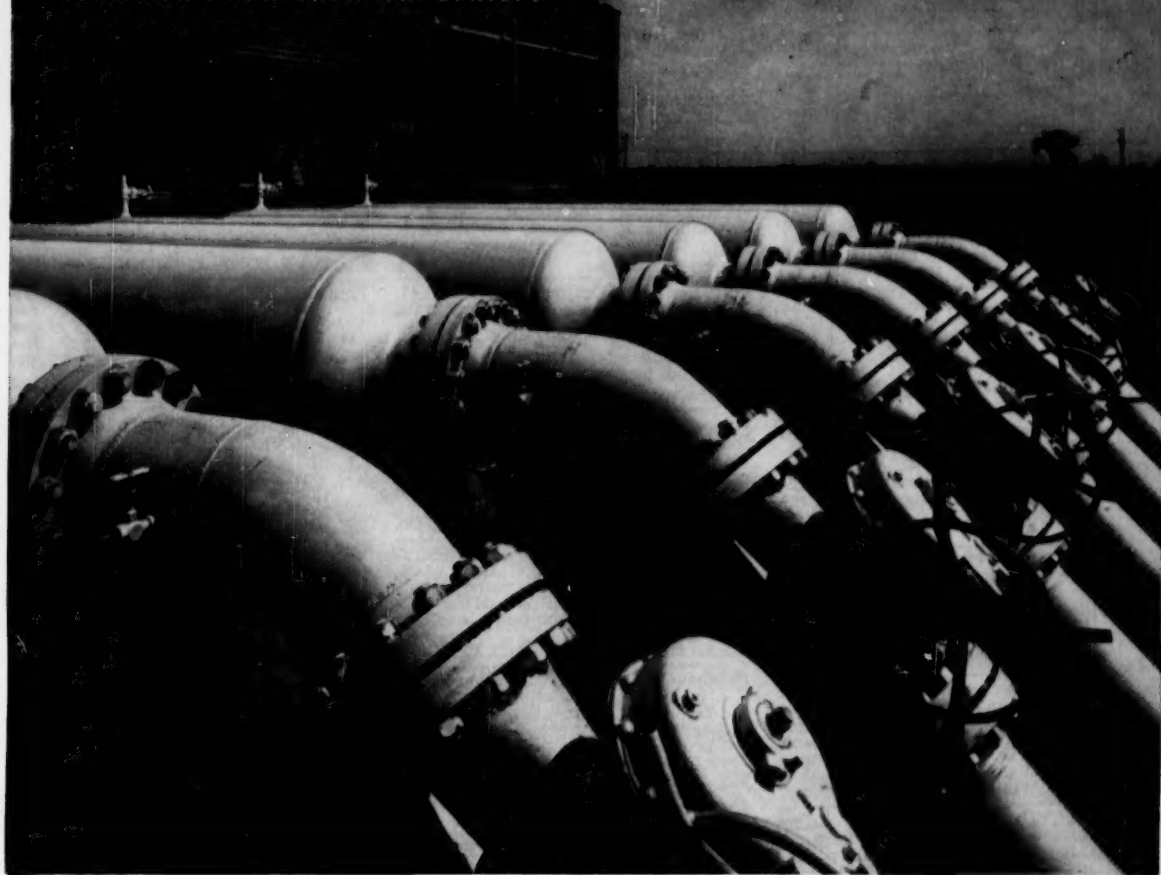
Nitrocellulose Base Solutions.....Handy easily read viscosity conversion chart for use with nitrocellulose base solutions is now available. Offers the ratings in poises from 10 to 5000, for 63 mediums.
226FF Cellofilm Industries.

Nitrogen Compounds, Aliphatic.....Illustrated booklet describes many aliphatic nitrogen compounds, giving properties, specifications & test methods. Includes physical property charts, shipping data, etc.
226GG Carbide & Carbon Chem.

Nitrogen Solutions.....48 p. handbook contains the most up-to-date nitrogen solutions technical data available. Describes chemical & physical properties, handling, storing information, etc.
226HH Nitrogen Div. (AC&D)

Nitroparaffins.....As solvents, the NP's present an unusual combination of properties. Request Technical Data Sheet for specifications, properties, uses, solubility tables, etc. plus product samples.
226II Commercial Solvents Corp.

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Literature Available

Octylene Oxide—

Potash

Octylene Oxide......Bulletin gives structure, typical properties and chemical reactivity of octylene oxide. Lists a number of suggested uses as intermediate, solvent and specialty chemical. Bulletin No. 72.
228A Becco Chem. Div.

Oils, Essential......25 p. catalog listing essential oils, aromatic chemicals, perfume compounds, gums and perfume concentrates. Also includes balsams and sundries, oleoresins, and wick odors.
228B Orbis Products Corp.

Olefin Oxide......Bulletin gives structure, typical properties and chemical reactivity of C₃-C₁₂ olefin oxide. Lists suggested uses as intermediate, solvent and specialty chemical. Bulletin 74.
228C Becco Chem. Div.

Organolithium Compounds......Company offers Annotated Bibliography On the Use of Organolithium Compounds in Organic Synthesis, Bibliography and Supplements are offered. Supplements 1, 2, 3, & 4.
228D Lithium Corp. of America.

Oxides, Chromium......Most stable of the green pigments, unaffected by acids, non-fading. The 4 pure chromium oxides withstand ceramic temperature; the 2 hydrated used for brilliant color. Data.
228E Williams Colors & Pigments.

Oxides, Ethylene......Manual brings up to date the available information on analytical procedures and industrial uses of ethylene oxide. Send for full details in Bulletin 1956.
228F Jefferson Chemical Co.

Ozone......Welsbach ozone is versatile in its applications and low in cost. Is finding more and more applications in industry. Used, for example, as an oxidant in the manufacture of cortisone. Booklet.
228G Welsbach Corp.

Ozone Generators......Brochure "Ozone Generation for Industrial Application" covers equipment, sizes, capacities, auxiliaries, power needs, costs data, installation and dimension data.
228H Welsbach Corp.

Paraffin, Chlorinated......Two uses for CP-40 chlorinated paraffin are: treated fabrics to prevent hot sparks from welding equipment from flying around; fire-retardant paints. Details available on request.
228I Hooker Electrochem. Co.

Paraformaldehyde......No need for heated storage tanks or large storage area when you use paraformaldehyde. Same output from smaller kettles; lower steam, electricity and cooling costs. Bulletin N-30.
228J Celanese Corp. of America.

Pentaerythritol......Perstorp Pentaerythritol is covered in bulletin giving general data, properties of 4 grades, applications, uses, and ways of computing the addition for the esterification. Bulletin Za 215 E.
228K Chas. A. Koons & Co.

1, 5-Pentanediol......6 p. bulletin gives information on 1, 5-Pentanediol's properties, shipping data, chemical reactivity, and applications. Includes literature references. Request copy of Bulletin F-40006.
228L Carbide & Carbon Chem.

Peracetic Acid......How peracetic acid is used in an aerosol spray to sterilize apparatus, instruments, gloves and whole laboratory areas. 8 p. Bulletin 83 discusses development of the spray, performance.
228M Becco Chem. Div.

Pesticides......Technical bulletin 47, "Formulator's Manual for Liquid Fertilizer-Liquid Pesticide Mixtures," tells how to use emulsifier for field mixing of pesticides with liquid fertilizers.
228N Emulsol Chemical Corp.

Petrochemicals, Hydrocarbon......Book on the chemistry of hydrocarbon petrochemicals and derivatives can be purchased. Preparation, reaction, catalysts, equipment, theory. TD1254.
228O U. S. Industrial Chem. Co.

Petroleum Products......Called "Petroleum Engineering Service," new 24 p. booklet describes company's cost-free service providing practical assistance on problems involving fuels, lubricants.
228P Gulf Oil Corp.

Petroleum Products......"Maintaining the Quality of Petroleum Products." Bulletin MQ-215, contains 64 p. on handling and storage of petroleum products, prevention and removal of contamination.
228Q Standard Oil Co.

Pharmaceuticals......Specially prepared form of hydrogenated Squelene and its use as a vehicle for topical pharmaceuticals and cosmetics is described in a 4 p. leaflet. Properties and benefits.
228R Robeco Chemicals, Inc.

Phosphates, Sodium......Include: sodium tripolyphosphate, trisodium phosphate, tetrasodium pyrophosphate, sodium polyphosphates, sodium acid pyrophosphate, trisodium phosphate chlorinated, etc. Catalog.
228S Blockson Chem. Co.

Phosphates, Tributyl......Request sample, technical data sheet and information on utilization of TBP in brine-type refrigeration units and other heat exchange systems. Material available upon request.
228T Commercial Solvents Corp.

Phosphorus Oxide......Clear liquid assays 99.5 minimum phosphorus oxide, can be used in making organic phosphates, plasticizers, gasoline additives or fire-resistant hydraulic fluids.
228U Hooker Electrochemical Co.

Phosphorus Trichloride......Liquid phosphorus trichloride has wide reputation as a convenient entry to many types of organic synthesis. Volume deliveries made in lead-lined tank cars. Data sheet.
228V Hooker Electrochemical Co.

Picoline......Bulletin on physical properties (net container contents and typical analysis) and applications (pharmaceutical intermediates, monomer production, complexing agent). Bulletin F-40113.
228W Carbide & Carbon Chem.

Pigment, Red......Now available for use in printing ink, plastics and rubber. Bright, bluish-shade red with improved light resistance compared to other non-bleeding azo reds. Bulletin C-66.
228X Sherwin-Williams Co.

Pigment, Red......A bright B-O-N type red pigment has a bluish shade, good light and bleed resistance. Can be used alone or with other colors for a variety of shades. Easy to grind. TD 1286.
35-6J *U. S. Industrial Chem. Co.

Pigments......List of this company's organic and inorganic paste for vinyls to aid in the selection of the right pigment or pigment types. Includes such data as pigment type, % pigment, % DOP.
228Y Harwick Standard Chem. Co.

Pigments, Aluminum Silicate......Bulletin 303, 6 p., describes additives for corrugating, laminating, tube winding and bag seam adhesives. Comparative penetration evaluations, typical formulations.
228Z Minerals & Chem. Corp.

Piperazine......Properties, reactions and uses, particularly in the pharmaceutical industry, of piperazine are described in a booklet. Toxicological and handling information is included.
228AA Dow Chemical Co.

Plastic Coater......Company offers enlarged section of general catalog covers dual-purpose thermoplastic spray and fluidizing unit, the laboratory powder fluidizer and plastic components.
228BB American Agile Corp.

Plastic, Laminated......Company offers free samples, technical literature on "Lamitor," a light-weight construction material that combines high corrosion and chemical resistance with strength.
228CC Strick Plastics Div.

Plasticizers......Some of the properties of Flexol plasticizer 810 are: low volatility, improved low temperature properties, light color and minimum odor, stable to heat and light. Ask for Bul. F-40078.
228DD Carbide & Carbon Chem.

Plasticizers......"Chlorowax LV-A Secondary Plasticizer for Vinyl Resins" describes the liquid chlorinated paraffin's properties & presents vinyl resin formulations & a plasticizer exudation test.
228EE Diamond Alkali Co.

Plasticizer......Data sheet, F-40079, on didecyl phthalate, plasticizer for the vinyl plastics industry. Covers physical properties, tentative specifications, compatibility, physiological effects, performance.
228FF Carbide & Carbon Chem.

Plasticizers......To promote quick and convenient comparison of qualities offered by the company's six plasticizers for PVC, bulletin makes tabular summaries of important properties. Service bulletin GP-8.
228GG B. F. Goodrich Chem. Co.

Plasticizer......Ester type, suggested where properties of low temperature flexibility, good heat and light stability, low heat loss and low volatility are desired. Plasticizer DP-200 described in data sheet.
228HH Harwick Standard Chem. Co.

1957 INVENTORY

Plasticizers.....Bulletin covers company's line of plasticizers, the Poly-cizers. Will help you choose the proper plasticizer, or blends of plasticizers, to formulate a high quality product. Bulletin 07-75-2-10-56.
229A Harwick-Standard Chem. Co.

Plasticizers.....Bulletin describes low temperature plasticizer, Plasticizer SC. Includes physical and chemical properties, data on use in Hycar, Chemigum, Paracril and Neoprene. Bulletin #06-72-3-5-56.
229B Harwick Standard Chem. Co.

Plasticizers.....Two 4 p. bulletins describe esters useful as plasticizers and in the formulation of synthetic lubricants. They are di-2-ethylhexy isosebacate and di-n-butyl isosebacate.
229C Kessler Chemical Co.

Plasticizers.....48 p. bulletin properties and specifications of 15 plasticizers. Includes methoxyethyl, butoxyethyl, butyl and octyl esters, phthalates, adipates, stearates, oleates and laurates.
229D Kessler Chem. Co.

Plasticizers.....Bulletin gives test recipe used & physical test data for Witco #20, a plasticizer for natural rubber tread stocks. Mooney Scorch time 25% longer than Pine Tar recipe. Bulletin R-12.
229E Witco Chem. Co.

Plasticizer, Latex.....Plasticizer A-12 emulsion is modifier for both curing and no-curing latex systems. Exhibits good softening, aging and water resistance properties. Write for bulletin.
229F Penn. Industrial Chem. Corp.

Plastics Extender.....Color dispersion and intensity in plastics are said to be improved by an extender, which is also reported to increase lubricity, mold-release and brightness. TD 1267.
229G U. S. Industrial Chem. Co.

Polyethylene.....Brochure introduces Grace chemical product. Grex high density polyethylene is a tough, versatile resin which remains stable over a wide range of temperatures. Details in "Grex" Bulletin.
229H W. R. Grace & Co.

Polyethylene.....16 p. booklet describes company's rigid polyethylene made by low-pressure methods. Basic chemistry, application, properties, costs. Also outlines service facilities.
229I W. R. Grace & Co.

Polyethylene.....Ziegler process polyethylene is featured in colorful brochure issued by Hercules. Illustrates plant production of Polymer, products made from Hi-fax and its properties.
229J Hercules Powder Co.

Polyethylene.....Bulletin gives data on processing and fabrication of Super Dylan polyethylene. Also gives typical physical properties and specifications. For complete details, see Bulletin C-6-216.
229K Koppers Co.

Polyethylene.....Offers 14 p. brochure describing available grades of low molecular weight A-C Polyethylene. Gives actual and suggested end uses for these versatile polymers. Bulletin No. 116.
229L Semet-Solvay Div.

Polymers, Block.....Some characteristics of the many Pluronic grades: defoaming, dispersing and suspending, sequestering, wetting and penetrating, lubricating, dedusting, free rinsing, etc. Grid data.
229M Wyandotte Chem. Corp.

Polyphenyl, Chlorinated.....Aroclor 1248 is a highly stable chlorinated polyphenyl; does not support combustion up to its boiling range 652° to 725°F.; is non-corrosive. Request technical information.
229N Monsanto Chem. Co.

Polystyrene.....Polystyrene molding compound, specifically for producing thin walled articles with improved resistance to breakage, is described in molding materials release No. 23. 6 p.
229O Bakelite Co.

Polystyrene....."Secrets" of Commercial Polystyrene Production," outlines problems encountered, and a summary of requirements for production of today's high quality commercial polystyrene. Bulletin TSB-8-56.
229P Koppers Co.

Polystyrenes.....Evenglo polystyrenes were developed in answer to the demand for a strong, lightweight and economical material for use in lighting applications. Request Bulletin C-6-162.
229Q Koppers Co.

Polyvinyl Acetate.....Suggested paint formulations with polyvinyl acetate emulsion is the subject of the 7 p. technical bulletin PVB-521A. For each formulation covered, tabular property data is provided.
229R Colton Chemical Co.

Polyvinyl Acetate....."Elvacet" polyvinyl acetate coatings—either clear or pigmented—on paper, cloth, wall and floor coverings are easily applied and air dried. Company will give literature and information.
229S E. I. du Pont de Nemours.

Polyvinyl Chloride Compounds.....16 p. bulletin on Vygen 2201 Compound, a modified rigid PVC compound for calendaring rigid thermoplastic post-formable sheets. For details, request Bulletin VC-2.
229T General Tire & Rubber Co.

Polyvinyl Chloride Compounds.....Offers 8 p. bulletin on rigid unplasticized polyvinyl chloride compounds. Geon 8700-A and 8750. Discusses use of these compounds in manufacturing rigid vinyl pipe and fittings.
229U B. F. Goodrich Chem. Co.

Polyvinyl Compounds.....Company offers booklet on their polyvinyl compounds, rigid "Geon" resins which offer superior resistance to oils, acids, alkalis and most chemicals. Easy to form, readily welded.
229V B. F. Goodrich Chem. Co.

Polyvinyl Materials.....Summary of the properties and fields of application of the company's polyvinyl resins, plastics, latices and polyblends. Sections on calendaring and coatings, extrusions, foam etc.
229W B. F. Goodrich Chem. Co.

Potash.....Source of quality potash. Storage and shipping facilities planned to meet demand of peak fertilizer season. Service to help manufacturers with granulation and formulation. Details.
229X National Potash Co.

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DESIGN ENGINEER
IN THE
PROPER SELECTION
OF MATERIALS**

We have coordinated a group of specialized laboratories for the purpose of assisting the Design Engineer in the selection of materials and augmenting his own research and development programs.

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Literature Available

Potash Caustic—
Silicones

Potash, Caustic..... Offers: solid, flake, granular, broken, crushed, powder, walnut, at 90% strength; solid and flake, at 85% strength; liquid, low-chloride at 45% strength. Details in bulletin.

230A Hooker Electrochem. Co.

Potash, Caustic..... Company will send samples—solid, flake, small flake, liquid—along with book, "Caustic Potash and Potassium Carbonate." Solvay's product is lowest in iron and turbidity.

230B Solvay Process Div.

Potassium Borohydride..... Detailed reference gives composition, properties, solubility, applications, typical reductions, handling, safety and storage information. Technical Bulletin No. 301-B.

230C Metal Hydrides.

Potassium Carbonate..... Potassium carbonate is 3 times as soluble as sodium carbonate at room temperatures. Higher solubility permits the use and packaging of more concentrated solutions. Fact book.

230D Solvay Process Div.

Potassium Silicate..... Cowles potassium silicate blends readily with other water-soluble and water-dispersible binders, adhesives and coatings. Gives better adhesion in water paints. Request Bulletin.

230E Cowles Chemical Co.

Powders, Metal..... Bulletin covers description, specifications, properties and uses of metal powders. These powders meet the exacting requirements of many diversified applications. Write in for Bul. 561.

230F Metals Disintegrating Co.

Preventers & Removers, Scale..... Ketone utilizes best features of polymerized phosphates and amino acid chelates to inhibit scale formation and dissolve and remove scale deposits. Tech. Bulletin.

230G United Chem. Corp.

Propionaldehyde..... Technical bulletin includes information on physical properties, specifications, shipping data, applications, & toxicity. A number of typical reactions are also given. Bulletin F-40110.

230H Carbide & Carbon Chem.

Proteins & Amino Acids..... Proteins and amino acids in animal nutrition are discussed in a revised booklet. Includes mutual supplementary action of proteins and other topics. TD 1262.

35-6c *U. S. Industrial Chem. Co.

Pyrethrum..... "Pyrethrum Facts for 1957" covers African pyrethrum produced from daisy-like flowers. Properties, applications and production figures are given for the product.

230I African Pyrethrum Dev. Inc.

Radioisotopes..... Specifications and prices for a line of radioactive isotopes for industrial, medical, research and educational uses are given in Technical Bulletin 14A. Covers half life, beta energy, etc.

230J Nucleonic Corp. of Amer.

Rare Earth Products..... Collection of technical data sheets in 12 p. brochure covers line of rare earth products including samarium oxide, europium oxide, gadolinium oxide, ytterbium oxide, yttrium oxide.

230K Michigan Chemical Corp.

Rare Earths..... Bulletin presents latest data on high purity rare earths, their character, their nature, separation, differences, applications, bibliography, alloys of the future. Available upon request.

230L St. Elol Corp.

Rauwolfia..... "Rauwolfia and Its Alkaloids" is a compilation of approximately 800 references from domestic and foreign journals. Covers fields of chemistry, pharmacology, therapeutic uses.

230M S. B. Penick & Co.

Rauwolfia..... First supplement to "Rauwolfia and Its Alkaloids: A Bibliography" lists 223 additional literature references. They cover chemistry, pharmacology, pharmacognosy, therapeutic uses.

230N S. B. Penick & Co.

Reagents..... Catalog 56 covers 1,300 reagents and other high-purity chemicals made by this company. Includes new additions to the line such as EDTA and the disodium salt and metal indicators.

230O J. T. Baker Chemical Co.

Reagents..... Complexing agents available in laboratory quantity described in 4 p. data sheet. Include (tetra) sodium ethylenediamine tetraacetate, (tetra) potassium ethylene diamine tetraacetate.

230P Fisher Scientific Co.

Resin..... Neville LX-685 resin is versatile, successful. Now used in aluminum paints, brake lining compounds, concrete curing compounds, concrete paints, deck enamels, etc. Information.

230Q Neville Chemical Co.

Resins..... Booklet discusses properties of BUTVAR—polyvinyl butyral—and FORMVAR—polyvinyl formal, preparation of wash primers, suggested formulations, and applications of the primer to metal.

230R Shawinigan Resins Corp.

Resins..... Epon resin coatings based on the XA-200 formulation, find outstanding success in the chemical process industries. Brochure covers full Epon coatings story—"Planning to Paint a Pyramid?"

230S Shell Chem. Corp.

Resins..... Company offers "Applications of Velcol Resins in Rubber Compounding" treating the use of thermoplastic hydrocarbon resins. Covers physical & electrical properties, test data, etc. Bulletin 218.

230T Velcol Chem. Corp.

Resins, Acrylic..... Lucite acrylic resins available with a wide range of molding characteristics & properties & in a variety of transparent, translucent & opaque colors. Offers descriptive literature on request.

230U E. I. du Pont de Nemours.

Resins, Coumarone Indene..... Bulletin presents a list of the grades the company has to offer, as well as their respective melting points, color, specific gravity, and physical form. See Bulletin 12-64-6-8-56.

230V Harwick Standard Chem. Co.

Resins, Cycloac..... Report on injection molding of Cycloac resins molds and gating, molding temperatures, ram operation, molded properties. Send for your copy of Bulletin CY-3.

230W Marbon Chemical Div.

Resins, Epoxy..... A mailer, entitled "Why Plastic Tooling?" tells how tooling compounds based on Bakelite epoxy resins can cut production costs and simplify model changeovers. 39 applications listed.

230X Bakelite Co.

Resins, Epoxy..... Method of protecting eroded concrete is described in nine steps on a 2 p. flyer. Also included is listing of cost, maintenance benefits to be derived from the use of epoxy systems.

230Y Furane Plastics Inc.

Resins, Epoxy..... For engineers and chemists responsible for design of epoxy resin encapsulation processes, bulletin TB 18 describes physical and electrical properties of a series of filled resins.

230Z Smooth-On Mfg. Co.

Resins, Formaldehyde..... Dimethyl hydantoin formaldehyde resin is a waterwhite resin having an initial softening point of approximately 60°C. Dissolves readily in water. Send for your Bulletin.

230AA Glyco Products Co.

Resins Geon Solution..... Geon polyvinyl resins designed for resin solution application—to provide thin, economical coatings on wood, metal, and other materials. Request a copy of "Geon Solution Resins."

230BB B. F. Goodrich Chem. Co.

Resins, High-Styrene..... Bulletin HY-2 describes high styrene resin—"Hystron." Contains information on processing, applications, compounding, specifications, physical properties, etc.

230CC General Tire & Rubber Co.

Resins, Ion Exchange..... 4 p. folder gives price information on analytical-grade anion exchange resins, cation exchange resins, and monobed resins plus a section on selection of specific resins.

230DD Bio-Rad Laboratories.

Resins, Ion Exchange..... Nalcite Ion Exchange Resins do the job efficiently with high capacity performance and outstanding resistance to attrition losses. Request data on Nalcite ion exchangers.

230EE National Aluminates Corp.

Resins, Nylon..... Zytel is the du Pont trade-mark for a versatile group of long-chain synthetic polymeric amides exhibiting extreme toughness & strength. Complete data on properties & applications.

230FF E. I. du Pont de Nemours.

Resins, Piccolyte..... Some of Piccolyte's advantages are: pale color, stable and non-yellowing, soluble in lowcost petroleum solvents, low cost. Company makes condensed catalog available upon request.

230GG Harwick Standard Chem.

Resins, Plastisol..... Exon 654 is expressly created to impart excellent heat and light stability, physical toughness and chemical stability to your products. Request information on entire product line.

230HH Firestone Plastics Co.

Resin, Polyester......Preliminary data sheet No. 397, 2 p., shows typical properties of company's polyester resin, Hetron 33; as supplied, when cured without a filler, when combined with glass mat and filler.
231A Hooker Electrochem. Co.

Resins, Polyethylene......Tough, flexible Alathon polyethylene resin stands up well against abrasive slurries. Widely used in industrial pipe applications. Offers information on the properties and applications.
231B E. I. du Pont de Nemours.

Plasticizers......Bulletin 80 describes methods of preparation and individual properties of several different epoxy fatty acid ester plasticizers. Plasticizers can be prepared from unsaturated fatty acid esters.
231C Becco Chem. Div.

Resins, Solution......Catalog, "Firestone Exon Solution Resins," binds together bulletins concerning each of the six Exon vinyl chloride resins for solution coatings. Request your copy from the company.
231D Firestone Plastics Co.

Resins, Solution......Bulletin describes "Geon" solution resins, their compounding, preparation, and applications. Includes procedure for viscosity determinations, tables, etc. Service Bulletin G-15.
231E B. F. Goodrich Chem. Co.

Rubber Cements......Bulletin supplement called GC-20D describes how use of company's Carbopol 934 as bodying agent in rubber cements eliminates stickiness, stringiness and strike-through.
231F B. F. Goodrich Chem. Co.

Rubber Reclaiming Oil......Bunac K8 reclaiming oil produces reclaim of higher tensile strength and lighter color than any other oil. Now available in drum and tank car lots. Data Sheet.
231G Olin Mathieson Chem. Corp.

Rust Remover......Company's liquid treatment, Mogul amine, for rust and corrosion in steam lines, return lines, radiators and steam heated processing equipment is described in 2 p. bulletin.
231H North Amer. Mogul Prod. Co.

Rust Removers......Leaflet describes Ferox, solution to remove rust chemically by destroying oxidase causing rust just as growth of bacteria is arrested by germicides.
231I Service Industries.

Rust Remover......A double acting rust remover is said to remove light rust in a few minutes, heavy rust in one to two hours. Deposits a rust-inhibiting film as it works, needs no rinsing of metal. TD1263.
231J U. S. Industrial Chem. Co.

Salicylaldehyde......Versatile salicylaldehyde, a reactive intermediate, is used in the preparation of coumarin, pharmaceuticals, dyestuffs, and additives. Technical data and samples available.
231K Heyden Newport Chem. Corp.

Salts & Solutions, Precious Metal......Precise Control during the precious metal refining process is your assurance of purity. Send for a list of over 40 precious metal salts & solutions.
124 *J. Bishop & Co.

Sequestering Agent......Cyquest 40, the tetrasodium salt of ethylenediamine tetraacetate, or EDTA, is effective sequestering agent. Clear, 40% solution packed in 15- and 35-gal. drums. Data sheet.
231L American Cyanamid Co.

Sesquicarbonate of Soda......Company offers fact booklet and samples of their brand of sesquicarbonate of soda, available in two virtually dust-free granulations, Snowflake Crystals and Snowfine.
231M Solvay Process Div.

Sesquiterpene Fractions......Beta Caryophyllene heads several sesquiterpene fractions offered in commercial quantities, with purity range of fractions between 90% and crude. TD1257.
231N U. S. Industrial Chem. Co.

Sieves Molecular......Molecular sieves dry your gases—air, hydrogen, chemical streams—more thoroughly than any other commercial adsorbent. Remove last traces of moisture. Data sheets.
231O Linde Air Products Co.

Silica Gel Indicators......Literature available giving comparative data on complete line of indicating silica gel products. Used to show changes in relative humidity by changes in color.
231P Davison Chemical Corp.

Silicates......Properties and applications of potassium silicates. Potassium oxide to silica molecular ratios, baumes and poises are given for the company's products. "Potassium Silicates, Properties, Uses."
231Q Philadelphia Quartz Co.

Silicon......20 p. monograph, "The Relationship of Silicon and Its Properties to the Electronics Industry," covers rectifiers, solar batteries, transistors, vacuum tubes, semiconductors.
231R Aries Laboratories, Inc.

Silicone Products......Brochure gives specifications on various Silicone compounds available, provides data on properties of Silicone Rubber, covers Silicone Coated Cloths. See Form No. 6903.
231S Raybestos-Manhattan.

Silicone Rubber......45 p. booklet called "1967—Silicone Rubber" is a basic report on silicone rubber available. Discusses basic chemistry, properties and compromises in compounding.
231T Connecticut Hard Rubber Co.

Silicones......Instructional leaflet outlines proper procedures for using silicone parting agents in shell molding. Discusses relative advantages and limitations of all types of agents. 4 p.
231V Dow Corning Corp.

LITHIUM METAL AND ALLOYS
LITHIUM HYDRIDE
LITHIUM HYDROXIDE
LITHIUM CARBONATE
LITHIUM CHLORIDE—BRINE—etc

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MAYWOOD, NEW JERSEY

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New Chemicals & Raw Materials

Literature Available

Silicones—
Solvents

Silicones.....Benefits provided by silicone masonry water repellents and specifications for applying them are described in a brochure "Silicone Masonry Water Repellents", designated CDS-81.
232A General Electric Co.

Silicones.....8 p. illustrated catalog CDS-97 discusses more than 115 different applications for silicones. Covers use in rubber products, cosmetics and polishes, electrical insulation, water repellants.
232B General Electric Co.

Silicones....."Silicones in Medicine and Pharmacy" shows how silicones have proved capable of improving a variety of products and of facilitating many technical and clinical procedures. Available upon request.
232C General Elec. Co.

Silicones....."Silicones for Industry" describes a family of semi-organics with unusual properties, rubber gums & compounds, resins, fluids, emulsions, chemicals. Booklet is available upon request.
232D General Elec. Co.

Silicones.....For a line of silicone emulsions, describes properties, dilution recommendations, uses, toxicity, compatibility. Discusses three emulsions; how to take advantage of the properties of each.
232E Harwick Standard Chem. Co.

Silicide.....Technical data on a chlorinated phenolic type slime control agent called Nalco 201 is given in 1 p. bulletin PI-201. Product is a highly stable liquid material. Request a copy.
232F Nat'l Aluminate Corp.

Soda, Caustic.....Caustic Soda Handling Chart includes information on: how to use caustic soda safely; personal protective equipment; and first aid treatment. Chart available from company on request.
232G Food Machy. & Chem. Corp.

Soda, Caustic.....Company offers Caustic Soda Engineering and Handling Guide, Bulletin 102; Caustic Soda Buyer's Guide, Bulletin 101 and technical data sheet. Company makes all available upon request.
232H Hooker Electrochem. Co.

Soda, Caustic.....Four plants from the Great Lakes to the Gulf deliver Mathieson Caustic in the quantity and quality specified, shipped on schedules to meet your requirements. Technical literature.
232I Olin Mathieson Chem. Corp.

Soda, Caustic.....Technical & engineering service bulletins cover a wide scope of subjects. Include: physical & chemical properties, use, handling & storage of caustic soda, soda ash. Bulletin Nos. 5 & 6.
232J Solvay Process Div.

Sodium.....For production of countless number of useful alcohols from plentiful fats and oils, improved general method has been developed for reducing esters with metallic sodium. Literature.
232K E. I. du Pont de Nemours.

Sodium Amide.....Sodium amide dispersed in xylene available in 1, 2 and 5 lb. cans. Commercial production planned with concentrations of 50% solids or lower, several carriers. TD1252.
232L U. S. Industrial Chem. Co.

Sodium Benzoate.....Hooker flake is just thick enough to stay in one piece without dusting during handling, just thin enough to dissolve rapidly as it settles. Request your free technical data sheet.
232M Hooker Electrochem. Co.

Sodium Borate Perhydrate....."Per-dox" sodium borate perhydrate makes for removal of coffee and tea stains—worst offenders on plastic ware. Will not affect the surface, or lose stain-removing ability.
232N E. I. du Pont de Nemours.

Sodium Borohydride.....MH sodium borohydride, MaBH, will reduce esters, acids, acid anhydrides, and acid halides. Announces a free detailed Bulletin 502-F and typical reduction procedure.
232O Metal Hydrides.

Sodium Chlorate.....Company offers details on advantages of using their sodium chlorate—fastest service east of the Rockies, skilled technical help when required, 99.5% minimum purity.
232P Hooker Electrochem. Co.

Sodium Dispersions.....Sodium dispersions were first developed by du Pont & are particularly useful in systems where sodium is insoluble. Literature on sodium dispersions & how to use them.
232Q E. I. du Pont de Nemours.

Sodium Dispersions.....New 44-page bulletin on techniques and equipment for using sodium dispersions in pilot plant and full scale reactions. Higher yields, economy, new uses. "Sodium Dispersions."
232R U. S. Industrial Chem. Co.

Sodium Dispersions.....The use of sodium dispersions as a catalyst for production of acetylacetone may permit substantial reductions in production costs. 42-page booklet, "Sodium Dispersions"
35-6a *U. S. Industrial Chem. Co.

Sodium Ferrocyanide.....Sodium ferrocyanide (yellow prussiate of soda) is used as a raw material for Iron Blue pigments, as a stabilizer and accelerator in electroplating baths, etc. Bulletin 200.
232S Henry Bower Chem. Mfg. Co.

Sodium Hydride.....A detailed technical reference containing information on: composition; properties; solubility; applications; typical reductions; handling; safety; storage. Tech. Bulletin 508-A.
232T Metal Hydrides.

Sodium Hydride Oil Dispersion.....Detailed reference contains information on composition, properties, solubility, applications, typical reductions, handling, safety and storage. Request Bulletin 508-A.
232U Metal Hydrides.

Sodium Hydrosulphite.....Data sheet describes improved Vatrolite, a specially concentrated, granular form of sodium hydrosulphite. Applications in the textile industry for vat dyeing and color stripping.
232V Royce Chemical Co.

Sodium Lauryl Sulphate.....Technical bulletin describes properties of dustless sodium lauryl sulphate in needle form ("Solasil" needles). Needles offer greater emulsion stability. Request a copy.
232W Aceto Chemical Co.

Sodium Lignosulfonates....."Polyfon" Technical Bulletin No. 303 describes use of sodium lignosulfonates as binder for structural clay products. Describes 5 grades, their surface activity, wet & dry strength.
232X West Virginia Pulp & Paper.

Sodium Lignosulfonates.....7 p. bulletin describes the use of "Polyfon", sodium lignosulfonate as a low price, moderately active dispersant in wettable insecticide powders. Technical Bulletin No. 306.
232Y West Virginia Pulp & Paper.

Sodium Metasilicate, Anhydrous.....Drymet anhydrous sodium metasilicate, when formulated with industrial cleaners and detergents, gives more soil-loosening and soil-dispersing power. File Folder.
232Z Cowles Chemical Co.

Sodium Nitrite.....Sodium Nitrite used, alone & in combination with other materials, for cleaning, neutralizing & protection of metals. "Sodium Nitrite for Rust & Corrosion Prevention."
232AA Solvay Process Div.

Sodium Nitrite.....Anhydrous sodium nitrite is available in an exclusive time and labor saving flake form. Will dissolve rapidly and store without caking. Prices and dealers' names are offered.
189 *Solvay Process Div.

Sodiumo-Silicate.....Booklet discusses various metal cleaning & laundry applications of the chemical & presents physical & chemical properties, packaging & safety precautions. Form No. 126-8-556.
232BB Dow Chem. Co.

Sodium o-Silicate.....Folder, "Heavy Duty Industrial Cleaner," describes sodium orthosilicate. Levels of pH are plotted to show comparison of various alkalis at given % concentrations. Request a copy.
232CC Philadelphia Quartz Co.

Sodium Succinate....."Sodium Succinate as an Adjunct in Psychiatric Therapy" describes clinical studies in which sodium succinate has been used alone and in combination with other drugs.
232DD N. Y. Quinine & Chem. Wks.

Sodium Sulphate.....Hooker sodium sulphate dissolves rapidly, even in cold water. There's virtually no sedimentation even after long standing. Available in 90-lb. & 350-lb. drums. Data Sheet.
232EE Hooker Electrochem. Co.

Sodium Sulfide.....The clean, strong flakes dissolve right into process, even without stirring. No waiting—no decanting. For information on Hooker's sodium sulfide, request your Data Sheet.
232FF Hooker Electrochem. Co.

Softeners, Nonionic.....Bulletin lists properties and test procedures for Emersoft 7700, as well as application data for use in the finishing of most cottons. For details, see Technical Bulletin 407.
232GG Emery Industries.

* From advertisement, this issue

1957 INVENTORY

Softeners, Rubber...... Technical Service Bulletin includes description of Witco #20 softener, giving physical properties, applications, and packing procedures. For information, request Bulletin R-11.
233A Witco Chem. Co.

Solubilizers...... Describes Witco GMO, a glycerol mono oleate of the non-self-emulsifying type for dispersing or "solubilizing" alkyd resins in "odorless" paint systems. Technical Service Bulletin H-4.
233B Witco Chem. Co.

Solute, Cleaning...... A spray-on cleaning "solute" is offered as compatible with water of 0-50 grain hardness, fast-acting, simple to rinse off, harmless to steel, paint and personnel. TD 1242.
233C U. S. I. Chem. Co.

Solvent Recovery...... General survey of solvent and air recovery by means of activated charcoal is available. Details advantages and circumstances under which such systems may prove advisable. Bulletin W-356.
233D Barnebey-Cheney Co.

Solvent Recovery...... 32 p. illustrated catalog describes "Columbia" Activated Carbon System of Solvent Recovery, including equipment, application, typical solvents & operation costs. Catalog F-4410D.
233E Carbide & Carbon Chem. Co.

Solvent Synergist...... Solvent synergist claimed to upgrade general purpose cleaners. Compatible with numerous solvents, emulsifies in-solubles in water, low in corrosive properties. TD1250.
233F U. S. Industrial Chem. Co.

Solvents...... Cellosolve and Carbitol Solvents for soluble oils, wood stains, lacquers, printing inks, dye pastes, hydraulic fluids, perfumes and plasticizers are covered in Bulletin F-4765C. Request a copy.
233G Carbide & Carbon Chem.

Solvents...... Technical information describes "Ketosol" Solvent 75, a mixture of Acetophenone & Phenyl Methyl Carbinol, giving physical properties, solubilities, applications, etc. Bulletin F-7370A.
233H Carbide & Carbon Chem.

Solvents...... Company makes available any type of solvent you need—ketones, esters, alcohols, and glycol-ethers. Offers 14 Flexol plasticizers for all types of coatings. Ask for Solvent Selector.
233I Carbide & Carbon Chem.

Solvents...... 16 p. booklet describes properties and applications of fluorinated hydrocarbon solvents in industrial cleaning jobs ranging from immersion of electric motors to general maintenance.
233J Du Pont Co.

Solvents...... Leaflet describes quick-acting solvent for gummed tape and glue said to eliminate foul odors from all sealing operations. Covers where and how product can be used and benefits derived.
233K Service Industries.

Solvents...... Shell Chemical solvents meet or exceed industry's highest standards for purity and uniformity at lower costs. For complete information request prices and specifications.
233L Shell Chemical Corp.

BECCO[®] Peroxygen Chemicals



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BECCO BULLETINS

HYDROGEN PEROXIDE AND ITS PROPERTIES

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| 2 & 2A: H ₂ O ₂ ; 3 & 46: Highly Concentrated and Concentrated H ₂ O ₂ ; 41 & 42: H ₂ O ₂ Formulas F (Food) and D (Drug); 55: Stability of Pure H ₂ O ₂ ; 59: Analysis of H ₂ O ₂ Solutions; 62: H ₂ O ₂ Vapor; 67: H ₂ O ₂ Physical Properties Data Book (\$1.00 postpaid); 70: Becco H ₂ O ₂ SP "100" (Super Pure). | 50. History of the Hydrogen Peroxide Industry. |
| 23. Method of Measuring H ₂ O ₂ Concentration in More Concentrated Solutions. | 54. Self-Heating of H ₂ O ₂ Storage Vessels. |
| 40. Equipment for Use with High-Strength H ₂ O ₂ . | 77. Concentrated Hydrogen Peroxide as a Propellant. |
| | 85. Chain Conductance of the Solvated Proton in Water-Hydrogen Peroxide. |
| | 87. The Behavior of the Glass Electrode in Hydrogen Peroxide Solutions. |

PERSULFATES

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| 11. Potassium Persulfate. | 49. Ammonium Persulfate. |
| 34. Uses of Persulfates—A Bibliography, Part I. | 68. Uses of Persulfates—A Bibliography, Part II. |

SODIUM PERBORATE

45. Sodium Perborate.

PERACETIC ACID

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| 4. Peracetic Acid 40%. | 24. Analysis of Aliphatic Peracids. |
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PEROXYGEN COMPOUNDS

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| 1. Active Oxygen Chemicals. | 8. Sodium Pyrophosphate Peroxide. |
| 5. Acetyl Peroxide. | 10. Urea Peroxide. |
| 6. Sodium Carbonate Peroxide. | 28. A Safe Method of Isolation of Acetyl Peroxide. |
| 7. Alkaline Earth Metal Peroxides. | |

TEXTILE PROCESSING

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| 25. Analysis of Peracetic Acid Bleaching Solutions. | 52. Bleaching with Some Peroxygen Chemicals. |
| 29. Hydrogen Peroxide Dry-In Process for Bleaching Wool. | 53. Fluorescent Agents in Hydrogen Peroxide Bleaching of Knit Goods. |
| 35. Modification of Wool with Peroxygen Compounds. | 60. Successful Bleaching of Type 670 Nylon. |
| 38. Oxidation of Vat Dyes on Cotton and Synthetics with Hydrogen Peroxide. | 61. Knit-Goods Bleaching Range. |
| 43. Treatment of Cellulose and Cellulose Derivatives with Peroxygen Compounds. | 71. Continuous Bleaching of Cottons with Silicate-Free Peroxide Solutions. |
| | 75. Oxidation of Dyes on Cottons and Synthetics with Peroxygen Chemicals. |
| | 88. Progress in the Art of Bleaching. |

PULP BLEACHING

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| 31. Groundwood Bleaching Variables—A Statistical Approach. | 48. High-Density Pulp Bleaching Processes. |
| 32. Hydrogen Peroxide Bleaching of Chemical and Mechanical Pulps. | 64. Development Studies on Last-Stage Peroxide Bleaching of Alkaline Pulps. |
| 47. Peroxide Bleaching of Pulps. | 65. Peroxide Bleaching of Southern Pulps. |
| | 66. Becco Laboratory Procedures for Pulp Bleaching, 1955 Edition. |

MISCELLANEOUS

- | | |
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| 15. Peracetic Acid 40%, A New Germicide-Fungicide for the Food Industry. | 58. Epoxidation-Hydroxylation Reactions. |
| 15A. Application of Peracetic Acid Germicidal Washes to Mold Control of Tomatoes. | 63. Action of Silver-Catalyzed Persulfate on 1,2-Glycols. |
| 17. Oxidation Reactions with Aliphatic Peracids. | 69. Epoxidation-Hydroxylation Reactions. |
| 26. Purification of Metal Salt Solutions with Hydrogen Peroxide. | 72, 73 & 74. Olefin Epoxides. |
| 27. Modification of Starches, Proteins and Gums with Peroxygen Chemicals. | 76. Epoxy Compounds from Unsaturated Fatty Acid Esters. |
| 33. Seed Treatments with Peroxygen Chemicals. | 78. Chemical Grafting. |
| 36. Progress in Peroxides. | 79 & 84. Direct Titration of Oxirane Oxygen. |
| 39 & 51. Surface Treatment of Metals with Peroxygen Compounds, Parts I and II. | 80. Epoxy Fatty Acid Ester Plasticizers Preparation and Properties. |
| 56. Epoxy Fatty Acid Ester Plasticizers. | 81 & 82. Terpene Oxides. |
| | 86. Improving Properties of Copper and Brass Surfaces. |



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New Chemicals & Raw Materials

Literature Available

Solvents—
Triacetate

Solvents......These solvents are recommended for low odor and odorless products. Detailed specifications of these Shell Solvents are contained in "Shell Solvents for Low Odor & Odorless Paints."
234A Shell Oil Co.

Solvents......Describes Turco-Solv, a detergent-action safety solvent. Compound is non-conductive, evaporates to dryness without leaving residue, requires no rinsing, is safe on metals. Folder A-28.
234B Turco Products.

Solvents, Aromatic......Cover a wide evaporation range. Their individual characteristics satisfy specific requirements in a variety of formulations. "Shell Aromatic Solvents for the Coatings Industry."
234C Shell Oil Co.

Solvents, Chlorinated......Company offers five chlorinated solvents: ortho-Dichlorobenzene, Monochlorobenzene, Monochlorotoluene, Trichlorotoluene, Trichlorobenzene, Trichloroethylene. Information.
234D Hooker Electrochem. Co.

Solvents & Organo-Metals......Deuterated solvents and organo-metals of high isotopic purity are now available in experimental quantities, with a wide range of research applications. TD 1266.
234E U. S. Industrial Chem. Co.

Solvents, Petroleum......Three new Shell solvents in mineral spirits distillation range are being produced for paint and dry cleaning industries. Further information supplied on request.
234F Shell Oil Co.

Sorbic Acid......8 p. bulletin F-8526A contains tables and graphs showing physical properties, solubility in various solvents. Directions for addition of sorbic acid to foods like cheese products, pickles.
234G Carbide & Carbon Chem. Co.

Specialties......8 p. booklet gives properties and application data on the company's wetting agents, latex compounds for upholstery and carpets, ultra-accelerators, rubber compounding materials.
234H Alco Oil & Chem. Corp.

Stabilizer, Chemical......Flat, non-curl photoprints said to be produced with a chemical stabilizer. Prints claimed to have improved retouching properties, pliability, gloss. TD-1251.
234I U. S. Industrial Chem. Co.

Stearates, Metallic......"Stearates. Their Properties & Uses" lists composition of 46 metallic stearates, shows industries in which they are used & presents analysis of applications. Bulletin 55-2.
234J Witco Chem. Co.

Stearic Acids......"Emersol Stearic Acids" is the title of a 24 p. booklet designed to aid selection of proper grade for each end use. It interprets the results of analytical tests commonly performed on the acids.
234K Emery Industries, Inc.

Sterilants, Soil......8 p. brochure describes how soil fumigation increases yields of many crops. Outlines methods of fumigating soil by applying temporary soil sterilant, Vapam. Request a copy.
234L Stauffer Chem. Co.

Sugar......Brochure, "Quality Plus," analyzes trend toward higher quality foods in the marketplace and evaluates the firm's liquid sugars in terms of how they may help processors upgrade quality.
234M Refined Syrups & Sugars.

Sulfoxide......Sulfoxide is an effective synergist, safe, non-irritating. 12 p. bulletin, "Sulfoxide," gives technical information and suggested starting formulas for popular insecticidal spray. On request.
234N S. B. Penick & Co.

Sulfur......Comprehensive 48 p. brochure, "Stauffer Sulfura," describes production and refining techniques, statistics on world production, notes on the various uses of the material. Tabulations of properties.
234O Stauffer Chemical Co.

Sulfur Dichloride......Paints passed thru sulfur dichloride vapor dry in 2 to 20 seconds. This drying process works on paper, wood, cloth, metal, glass & plastics. Full data & samples are available.
234P Hooker Electrochem. Co.

Surface Active Agents......Bulletin gives technical data on the seven types of surface agents offered by company. Basic formulations, data for testing effectiveness, storage and handling data.
234Q American Cyanamid Co.

Surface Active Agents......12 p. brochure describes a line of all-weather asphalt anti-stripping additives. Details on uses, test results. Products are cationic surface active agents.
234R Armour & Co.

Surface Active Agents......Called "Tergitol Surface Active Agents", 40 p. booklet provides selection data in tabular form for a complete line of products. Individual sections cover industrial applications.
234S Carbide & Carbon Chem. Co.

Surface Active Agents......Technical data sheet No. 3A, 2 p., describes company's Alkaterge-T, a non-volatile, weakly cationic amine-type compound. Specifications, physical properties, uses, toxicity.
234T Commercial Solvents Corp.

Surfactants......Igepal CO surfactants are an integrated and mutually compatible series of nonionics. Each Igepal CO has special performance properties. Request application information and literature.
234U Gen. Aniline & Film Corp.

Surfactants......2 n. data sheets are available on each of four products composing company's "J" series of nonionic surface active agents. All members are good wetters, detergents, dispersants.
234V Olin Mathieson Chem. Corp.

Surfactants......40 p. booklet of charts shows properties of Sandopan DTC which make it useful in cotton, wool, rayon and synthetic processing. Includes charts on surface tension in distilled water.
234W Sandoz Chemical Works.

Surfactants, Nonionic......Suggested uses for Teox 120 as textile cleaning and dye leveling, de-dusting, emulsifying agent and dispersant. Request data sheet, testing sample and bulletin.
234X Blockson Chem. Co.

Tall Oil......4 p. leaflet on tall oil gives application information, average characteristics, specifications such as acid, saponification and iodine numbers, color, rosin acids, fatty acids for four grades.
234Y Welch, Holme & Clark Co.

Terpene Oxides......Terpene oxides—dipentene monoxide and a-pinene oxide—have potential uses as intermediates in manufacture of protective coatings, insecticides, adhesives, etc. Buls. 81 and 82.
234Z Becco Chem. Div.

Tetrachloro-Benzoquinone, Technical......Literature covers physical properties, chemical properties, toxicology, prechemical properties, precautions in handling and analytical methods.
234AA Naugatuck Chem.

Tetrachlorohydroquinone......Bulletin page covers information on physical properties, solubility in solvents, chemical properties, toxicity and analytical methods of Tetrachlorohydroquinone (TNE).
234BB Naugatuck Chem.

Tetrahydrofuran......Increasing use in applying top coats of high molecular weight polyvinyl chlorides to polyvinyl chloride sheeting and supported fabric. For information, request Technical Bulletin.
234CC E. I. du Pont de Nemours.

Tetrapotassium Pyrophosphate......Bulletin covers: description, typical analysis, properties, rate of solution and uses. This is a revised and expanded publication. Request Bulletin No. 505 2R.
234DD Westvaco Mineral Products.

Thickeners......Superloid is a thickener for latex and resins. Produces desirable body and improves working properties. Effective for maintaining stability of dilute latex systems. Sample and bulletin.
234EE Kelco Co.

Thioacetamide, Stabilized......Sulfide can be used to replace not only hydrogen sulfide, but also all other reagents designed to supply sulfide ions in chemical procedures. 8 p. Manual available.
234FF A. Daigier & Co.

o-Toluenesulfonyl Chloride......Pure o-toluenesulfonyl chloride boils at 126° C.; is completely stable in storage; non-corrosive when shipped; reacts like a typical strong acid chloride. Data Sheet.
234GG Monsanto Chem. Co.

Toluene......Data Sheet SD-63 gives properties and essential information for the safe handling of toluene. Includes material on shipping containers, storage, waste disposal and health hazards.
234HH Mfg. Chemists' Assoc.

Triacetate......Ten formulas for slashing Arnel triacetate, bringing the total available to 16, are contained in bulletin. Information on warping, weaving and quilling Arnel. Bulletin TD-13A.
234II Celanese Corp. of America.

1957 INVENTORY

Tributyltin Oxide.....A tributyltin oxide to control microbiological slime in pulp and paper mill systems is reported highly successful under all pH conditions. Noncorrosive, economical. TD 1241.
235A U. S. I. Chemicals Co.

Trichlorethylene.....40 p. booklet covers physical and chemical properties, shipping containers, safe handling procedures, etc. See Bulletin 44. Data Sheet 787 gives information on all grades.
235B Hooker Electrochem. Co.

Trimethylolpropane.....Another al-dol product from Celanese—in continuous large volume with exceptionally high purity at low cost. Makes available samples, prices and product information.
235C Celanese Corp. of America.

Urethane.....6 p. technical bulletin No. 5 describes urethane (ethyl carbamate), its physical properties, specifications and analysis, commercial information, chemical reactions. Includes a bibliography.
235D Food Mach. & Chem. Co.

Urethane Foams.....14 p. booklet called "A Vast New World of Industrial and Business Opportunities" covers history, chemistry, manufacture, fabrication, and research on urethane foam.
235E Dayton Rubber Co.

Urethane Polymers.....Combination catalog and file folder on foamed-in-place flexible, semi-rigid and rigid urethane plastic polymers. Covers in-plant applications, electrical properties.
235F Dayton Rubber Co.

Vinyl Film.....Summary of properties of cast film in 12 formulations is given to indicate its usefulness in a wide variety of applications. Booklet contains technical information on tensile strength.
235G Bakelite Co.

Vinyl Plastisols.....Portfolio titled "Plastisolutions to Your Finishing Problems" discusses potential uses for vinyl plastisol finishes in a 4 p. brochure. Also contains five data sheets.
235H Stanley Works.

Water Repellents.....Folder tells how repellents based on silicones protect concrete highways, bridges and other concrete constructions from spalling and other troubles. Describes tests of effectiveness.
235I Union Carbide & Carbon Corp.

Wax.....Brochure describes company's line of microcrystalline waxes. Defines differences between paraffin waxes and microcrystalline. Surveys the specifications in various grades.
235J Bareco Wax Co.

Waxes, Polyethylene.....Brochure for formulators and manufacturers of wax-containing industrial and consumer products covers range of applications for Epolene, a line of polyethylene waxes.
235K Eastman Chem. Prods.

Yttrium & Rare Earth Oxides.....High purity rare earth oxides are now used in a variety of applications. Detailed information and prices in bulletin, "Purified Rare Earth & Yttrium Oxides".
235L Lindsay Chemical Co.



Everyone tells a story of Savings ...with SOLKA-FLOC!

This versatile, finely-divided cellulose has so many applications. For example:

- ... as a processing aid, filler, binder or extender in Rubber, Plastics, Pharmaceuticals.
- ... as an adsorbent in Chromatography.
- ... in the manufacture of Chemical Derivatives of Cellulose
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In this application SOLKA-FLOC gives you greater, more economical volume of clarified filtrate because its finely divided particles trap the tiniest of suspended solids. It makes a stable pre-coat, does not "bleed" and there's

no loss of cake due to pressure drop, no abrasion of pulps and valves, minimum retention of filtrate in filter cake.

SOLKA-FLOC effectively adsorbs many metals such as iron, copper and other impurities and can be burned to recover valuable solids. Let us show you how SOLKA-FLOC® will do a better job for you in your product or your process. Address Dept. FD-11at our Boston office.

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INVENTORY

New Equipment & Accessories

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This fourth annual inventory of major new developments in commercial equipment for the chemical process industries is your fast-reading guide to new or newsworthy items which appeared in CE's August 1956-August 1957 issues. All 420 items have been carefully screened and selected by CE editors. Emphasis is on equipment used in commercial or large-scale processing units. For more information on any item, write its code number on one of the Reader Service postcards inside the back cover, then mail to us. The 420 entries in this new equipment section have been divided into categories as follows:

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Battery, Atomic

Delivers continuous electrical power for 5 yr.
(237A)

... Tiny atomic-powered battery, which in shielded form is no bigger than a cough drop, can supply usable electric current for five years. Battery has nominal output of 20 micro-

watts and is first such device completely safe for extensive personal handling without special precautions.—*Walter Kidde Nuclear Lab., Inc., Garden City, N. Y.*

Battery, Truck

Greater power, lower cost.
(237B)

... Through use of porous tubing to encase grid spines and active material of positive battery plates, Exide Ironclad Giant Type GN battery offers higher amp.-hr. per cu. in. rating—72 ampere-hours per positive plate.

Tubing is highly permeable to diffusion of electrolyte and passage of current, making batteries effective at high discharge rates.—*Dept. TG, Exide Industrial Div., Electric Storage Battery Co., Philadelphia 1, Pa.*

Breakers, Circuit

Low initial and maintenance cost.
(237C)

... StABreaker line provides new plug-in type of AB industrial circuit-breaker panel-board technique that conforms to industry-wide standards. Type E, F and J frame breakers provide plug-in ratings from 15 to 225 amp. in only two NEMA 1A general purpose enclosures. Two additional enclosures for conventional bolted-in Type K, KL and L frame breakers complete line. Chief advantages of line are low initial cost, low maintenance cost and long life.—*Federal Pacific Electric Co., Newark, N. J.*

**Connector, Electrical**

Joins copper to aluminum.
(237D)

... ALCUnector is reported to perform satisfactorily in areas where other available connectors have failed in a relatively short time. Copper-to-aluminum connector eliminates two

principal problems faced when two dissimilar metals are joined: galvanic corrosion and thermo-elastic ratcheting.—*Kaiser Aluminum & Chemical Corp., Oakland 12, Calif.*

Control System

Performs like contacting relays.
(237E)

... Static switching control system performs same control functions as contacting relays. System aids automation of various low-power switch-

ing operations, reduces or eliminates failure from wear, fatigue or harsh environment.—*General Electric Co., Schenectady 5, N. Y.*

Cutting, Metal

Non-ferrous.
(237F)

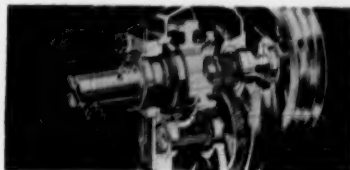
... Aircomatic inert-gas welding process can be used to cut non-ferrous metals using standard welding equip-

ment. No special techniques are needed by the operator.—*Air Reduction Co., Inc., New York 17, N. Y.*

Drive, Screw-Conveyor

Bolts directly to conveyor trough.
(237G)

... Screw-King speed reduction unit has been designed especially for screw conveyor. Drive is compact unit with flange adapter that permits bolting directly to trough end of conveyor. This eliminates any tendency to wobble.—*American Pulley Co., Philadelphia 29, Pa.*

**Drive, Slip-Type**

Uses magnetic force for smooth pickup.
(237H)

... Whitney-Tormag magnetic drive provides a flexible slip-type drive between a motor and its load, in a range from fractional horsepower to over 50 hp. Magnetic drive consists of

magnetic rotor carrying strong Alnico V permanent magnets; and a bimetallic rotor which is a copper-faced, mild steel plate or cylinder.—*Whitney Chain Co., Hartford, Conn.*

Drive, Variable-Speed

Large unit for wider use.
(237I)

... New V*S Jr. variable-speed electronic drive now has maximum size of 4 rather than 3 hp. Heart of unit is printed circuit board which reduces

number of wires and hand-soldered connections. Drive motor is constant flux type.—*Reliance Electric & Engineering Co., Cleveland 17, Ohio.*

New Electrical Equipment

1957 INVENTORY

Flashlight, Atomic

Provides light for years without battery. (238A)

... Using essentially non-hazardous radioisotope (with half-life of 12 yr.), new flashlight is available with variety of light outputs and colors. Vari-

able climate, moisture, temperature don't affect continuous emission of light from device.—*New England Nuclear Corp., Boston 18, Mass.*

Gearmotor

Assures trouble-free service. (238B)

... In line of a.c. and d.c. gearmotors, two-way seals lock oil and seal dirt out so that gearmotors may be mounted in virtually any position without oil leakage. Hard surfaces on teeth of gears make for strength and wear resist-

ance. Simple gear train has fewer parts to wear, less mechanical friction and transmits power better, it's reported. Gearmotors come in 1 to 60 hp.—*Reliance Electric & Engineering Co., Cleveland 10, Ohio.*

Gearmotor

Space-saving, for heavy duty. (238C)

... New Reliance gearmotors feature horizontal or vertical mountings, conventional double shaft and hollow shaft to fit all types of reduced-speed applications. In one to 10 horsepower sizes, motors are rated for continuous duty; one to 30 horsepower for inter-

mittent duty. Smaller gears produce necessary ratings, saving space and weight. Gearmotors produce lower output speeds at higher efficiencies than conventional gearmotors.—*Reliance Electric & Engineering Co., Cleveland 17, Ohio.*

Gearmotors, Vertical

For heavy-duty fan drives in cooling towers. (238D)

... Vertical, shaft-up gearmotors replace present cooling tower fan drives that use a separate right-angle speed reducer driven by a horizontal motor through a floating, flexible-coupled

shaft. With new drives, only one supporting structure is necessary. Gears and bearings are supported in one-piece housing.—*Westinghouse Electric Corp., Pittsburgh 30, Pa.*

Insulation, Motor Coil

Resists chemicals, oil, moisture, dirt. (238E)

... Integrated field coil with new insulating system is available for motors or generators that must resist atmospheric contaminants and destructive mechanical forces. Primary

insulation in coil is glass with fibers tailored and oriented for maximum strength. Solventless, inorganic, heat-stable resins augment fibers.—*Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.*

Kit, Spark-Proofing

For electrical systems of industrial trucks. (238F)

... Electrical spark-proofing kit is available for full Lamson line of standup and sitdown industrial trucks. It shields electrical systems on gaso-

line engines to eliminate possibility of any electrical sparks being exposed to flammable fumes.—*Lamson Mobilift Corp., Syracuse, N. Y.*

Light, Cargo

For dark areas. (238G)

... Hoffman cargo light supplies high-intensity light inside freight cars or other dark areas. Unit will accom-

modate two bulbs up to 200-watt size. Guards protect bulbs.—*Hoffman Engineering Corp., Anoka, Minn.*

Manhole, Cable

Overcomes shortcomings of conventional type. (238H)

... Type GUB above-ground manhole conduit provides simple, inexpensive means for splicing main electrical feeder cables and making branch taps. With GUB you avoid dealing with gas contamination or accumulated water

so often found in underground manholes. It has breathers and drains to reduce internal condensation. And there's no need to fill interior with hot insulating compounds.—*Crouse-Hinds Co., Syracuse 1, N. Y.*

Microscope, X-Ray

For study of metals, coatings, corrosion. (238I)

... With X-ray microscope, you may view objects either directly or record the image on film. Compared to optical microscope, X-ray microscope offers an advantage in depth of focus which permits three-dimensional examination of the specimen. No special

sectioning of sample is needed. While not as powerful as the electron microscope, the X-ray microscope can be used without mounting the specimen in a vacuum or other special preparation.—*General Electric Co., X-Ray Dept., Milwaukee 1, Wis.*

Motor, Electric

Has rotor supported by film of gas or liquid. (238J)

... Low-cost electric motor never requires bearings or lubrication because rotating assembly is supported within the stator on a film of fluid. Load-supporting fluid acts in the gap

region. Motor alignment problems, end-bell housings, bolts, wicks, conventional bearings and grease disappear.—*Air-Glide Engineering Laboratories, Vermilion, Ohio.*

✓ *Code numbers for fast Reader Service*

Motor, Enclosed

Advanced design. (239A)

... Type J motor, with facilities for mounting driven equipment directly to motor, has more horsepower in less

space. It meets new dimension standard of NEMA.—*U. S. Electrical Motors Inc., Los Angeles 54, Calif.*

Motor, Fan-Cooled

Offer many advantages. (239B)

... Line of totally-enclosed motors offers complete protection against moisture, dust, corrosive atmospheres. Motors have die-cast aluminum rotor

sprayed with rust inhibitor which covers entire assembly, including shaft.—*Robbins & Myers, Inc., Springfield, Ohio.*

Motor, Gear

Good for remote control. (239C)

... Shaftrol, shaft-mounted gear motor, provides remote and automatic control for variable-speed drives, valves, pumps, feeders and other types of machinery. Unit mounts on shafts

from 1/2- to 2-in. dia. There's a wide choice of gearing ratios to vary output speeds and torques. Speeds and torques vary over wide range.—*Jordan Co., Inc., Milwaukee 9, Wis.*

Motor, Heat-Resistant

Withstands shaft temperatures to 2,100 F. (239D)

... Heat-resistant motor design features liquid cooling of shaft and electric windings. Motor housing is positively sealed to make motor suitable for operation under pressure vacuum

application. Liquid cooling of motor enclosure permits operation under high ambient temperature conditions.—*Kaybee Engineering Co., Westmont, Ill.*

Motor, Induction

Built to new standards in 40 to 125 hp. sizes. (239E)

... With line of 40 to 125 hp. induction motors, General Electric becomes first manufacturer to complete redesign of its entire standard line of induction motors from one to 125 hp. in accordance with new NEMA stand-

ards. Due largely to improved insulation, new motors weigh an average of 20% less; lineal dimensions average 10% less; volume averages about 27% less.—*General Electric Co., Schenectady 5, N. Y.*

Motor, Protected

For non-hazardous outdoor installations. (239F)

... Weather-protected motor, type FOD, now is available in ratings of 250 hp. and larger for non-hazardous outdoor installations. Motor is built

into rigidly constructed fabricated-steel frame equipped with two removable air ducts.—*Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.*

Motor, Variable-Speed

Handles greater radial loads. (239G)

... Slo-Speed gear motors and Speed-Trol variable-speed motors with reducer have been developed for severe radial load duty. Design relies on extended bearing on speed reducer. Dis-

tance between bearings on output shaft has been lengthened to increase both radial load capacity and rigidity.—*Sterling Electric Motors, Inc., Los Angeles 22, Calif.*

Motor, Vertical Pump

Corrosion proof. (239H)

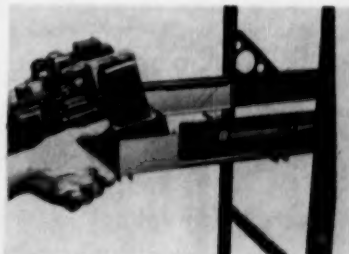
... Complete line of totally protected, vertical, solid-shaft, P-base electric motors is available for all vertical

pump installations—either inside or out.—*Reliance Electric & Engineering Co., Cleveland 10, Ohio.*

Mount, Electronic

Eases mounting of equipment in cabinets. (239I)

... Easy-Mount chassis slide assembly, Model CTFM, overcomes most troublesome phase of mounting—bolting the slide to the rear of the cabinet. It can be used on control panels or other electronic equipment. After slide assembly has been attached to front rails of cabinet, chassis is simply set in cradle. Complete installation takes about 5 min. and requires only a screwdriver.—*Chassis-Trak Corp., Indianapolis, Ind.*

**Power Package**

Coupling and motor within single frame. (239J)

... Included as part of Flexi-Shaft motor is a fluid coupling that uses steel shot instead of true fluid. Adapted from new Dodge Flexidyne drive, coupling is mounted inside mo-

tor's frame to provide a single-frame package. Features include smooth load acceleration, protection against equipment jamming.—*Reuland Electric Co., Alhambra, Calif.*

New Electrical Equipment

1957 INVENTORY

Power Unit

Converts a.c. motors to variable speeds. (240A)

... With Varidyne power unit you can convert any standard NEMA 3-phase a.c. induction motor to a variable-speed drive without even removing it from its present installation.

Varidyne unit varies the speed of the standard a.c. motor by changing the frequency of the power driving it.—*U. S. Electrical Motors, Inc., Los Angeles 54, Calif.*

Processing, Radiation

Center rents radiation time to research projects. (240B)

... Applied Radiation Corp. is operating linear electron accelerators on a rental basis at its Western Service Irradiation Center, Walnut Creek, Calif. By using these facilities you can establish preliminary experi-

mental justification before investing in your own radiation equipment. Outstanding among Center's equipment is 10-million-electron-volt Mark 1-F2 accelerator.—*Applied Radiation Corp., Walnut Creek, Calif.*

Protector, Motor

Cuts power to motor when overloaded. (240C)

... TS motor-protecting relay employs basic principles of symmetrical components to drop out any three-phase, induction motor that ap-

proaches dangerous overheating from overload, voltage unbalance and/or single phasing.—*Electrical Service Co., Greenville, Tex.*

Pulley, Speed Reducer

Gives differential driving action. (240D)

... Differential speed reducer pulley consists of V-belt pulley having internal gear reduction ranging up to 8,000 to 1. Also, it has a torque disk

designed for driving through a separate control motor to provide differential action.—*Hart Reduction Pulley Co., Waukesha, Wis.*

Reactor, Nuclear

Mass produced. (240E)

... AGN 201 nuclear reactor is designed for mass production and sells for under \$100,000. Among foolproof

safety features is a thermal safety fuse built into core.—*Aerojet-General Nucleonics, San Ramon, Calif.*

Rectifiers, Silicon

Miniature 10 kw. size. (240F)

... Type 4JA60 miniature silicon rectifiers can satisfy wide variety of power needs. Applications include on-the-spot conversion of a.c. to d.c. current for motor drives in automation equipment, elimination of rotary con-

verters driving d.c. motors and supply of power for computers. Rectifiers can operate in ambient temperatures from -65 to +200 C. In most circuits, efficiency rating is 99%.—*General Electric Co., Syracuse, N. Y.*

Regulator, Electronic

Provides performance continuity. (240G)

... Dual-circuit, variable-speed, electronic regulator for mill drives in industries such as paper, rubber, glass, non-ferrous metals, provides utmost performance continuity. Normally, circuits operate in parallel,

sharing the load. In case of the tube failure in one of the circuits, the operable circuit instantaneously picks up and carries the full load.—*Reliance Electric & Engineering Co., Cleveland 17, Ohio.*

Signal, Marker

Uses radioactive gas. (240H)

... First commercial high-brightness safety signal and markers to use long-lived radioactive Krypton⁸⁶ gas are designed especially for installations where power and maintenance are

limited. Signals come in variety of shapes, sizes, brightness. They are visible at distances greater than 500 yd.—*U. S. Radium Corp., Morristown, N. J.*

Starter, High-Voltage

Compact, self-contained. (240I)

... Type ZHA high-voltage starter is self-contained, complete with control transformer to supply low voltage for push-button circuits. Starters may be mounted directly against wall,

or in double rows back-to-back, since they're completely accessible from the front. Starter is compact.—*Electric Controller & Mfg. Co., Div. of Square D Co., Cleveland 28, Ohio.*

Starters, High-Voltage

Increase short-circuit, overload protection. (240J)

... Line of FPA high-voltage combination starters for squirrel-cage, wound-rotor and synchronous motors combines advantages of current-limiting, high-interrupting-capacity fuses

with rugged air-brake contactors. This combination of characteristics results in increased overload and short-circuit protection.—*Federal Pacific Electric Co., Scranton, Pa.*

FOR MORE INFORMATION on any item in this section, write its code number on one of the Reader Service postcards (inside back cover) and mail. It's fast and easy.

"Used many makes of turbines... PREFERS COPPUS"

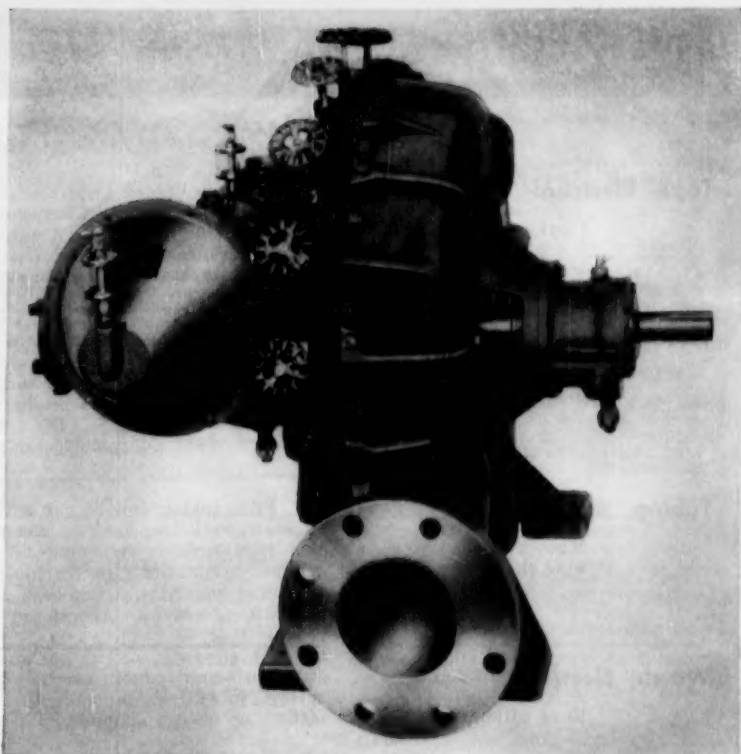
If you want to know about turbine performance, ask an *operator*. He *knows*. And, in the words of one of them:

"I have had occasion in the past to operate many makes of turbines. The plant in which I am now employed is almost entirely Coppus equipped on our auxiliary equipment. I find your turbines most satisfactory and would like to congratulate you on your design."

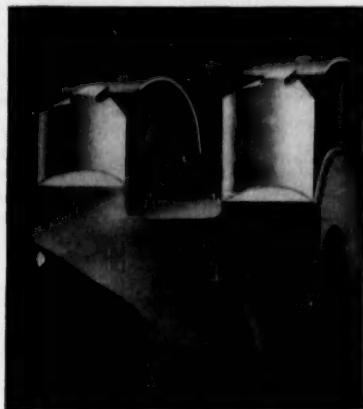
Whether you use a Coppus with a regular wheel or wide bucket "L" type you get these *proven* features:

- Turbines rated close to your hp requirements from 150 hp down to fractional. No need to buy a bigger, costlier turbine than your conditions call for.
- A larger number of steam nozzles, controlled individually by manually operated valves.
- Exclusive pilot operated excess speed safety trip supplementing constant speed governor.
- Replaceable cartridge type bearing housings.
- Optional carbon ring packing glands.
- Coppus Steam Turbines ranging from 150 hp down to fractional in 6 frame sizes, *make turbine dollars go farther*. Send for Bulletin 135 on Coppus Turbine.

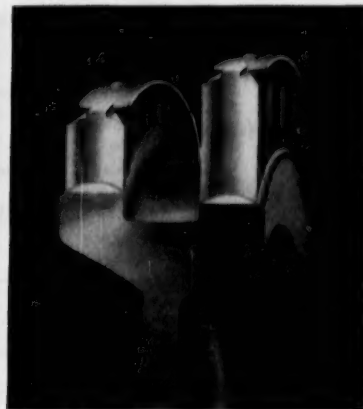
COPPUS ENGINEERING CORPORATION
192 Park Avenue, Worcester 2, Mass.
Sales offices in THOMAS' REGISTER



This is the reliable Coppus Turbine furnished with either a regular wheel or wide bucket "L" type wheel.



This wide bucket "L" type wheel is a new development for use where low water rate is essential.



This is the regular wheel used on Coppus Turbines which have been so highly satisfactory throughout industry.

COPPUS "BLUE RIBBON" TURBINES

New Electrical Equipment

1957 INVENTORY

Want more information? Use key numbers & postcard

Tape, Electrical

Vinyl compound. (242A)

... Complete line of vinyl electrical tape in 8- and 10-mil thicknesses carries Underwriters' Seal of Approval. It's recommended in place of friction and rubber tape where abrasion exists

or where tape is exposed to water, acids, alkalis or other corrosive conditions. Also it's more efficient.—*Quaker Rubber Div., H. K. Porter Co., Inc., Philadelphia 24, Pa.*

Transistors

Have exceptionally long lives. (242B)

... Replacement of transistors in portable radios and other electronic equipment may never be necessary if they're used within limits set by the manufacturer. At G.E., life tests started in 1954 on random samples

from regular manufacturing lots show no failures after 18,000 hr. working at full load. Transistors can withstand substantial doses of nuclear radiation.—*General Electric Co., Semiconductor Products, Syracuse, N. Y.*

Tubing, Bendable

Made for conduit from wide choice of materials. (242C)

... Plica tubing can be cut with a hacksaw or knife, bent to contours that hold without returning to the original orientation. In Switzerland and other countries, it has been used as electrical conduit. Almost any de-

sired combination of ferrous and non-ferrous metals, fiber, paper and other materials can be used in manufacture of tubing of this type. Plica is now available in the U.S.—*Flezaust Co., New York 17, N. Y.*

Watch, Electric

Runs without winding. (242D)

... New electric watch has no mainspring. It will run for more than 12 months on energy supplied by a tiny

energizer the size of a small shirt button.—*Hamilton Watch Co., Lancaster, Pa.*

Welder, Arc

For steel fabrication. (242E)

... Unionarc welding is semi-automatic manual arc-welding process, using continuously fed bare-wire electrode which is magnetically coated with flux at point of use. Welding arc, shielded in CO₂ gas atmosphere,

produces high quality welds, little distortion. Welding speeds are 50 to 100% greater and total welding costs are 20 to 50% less for Unionarc than for covered electrode welding.—*Linde Air Products Co., New York 17, N. Y.*

X-Ray Method

Faster, cheaper than conventional technique. (242F)

... Advantages of xeroradiography are that process is entirely dry; plates can be "erased" and used over and over again; images are extremely detailed and only 20 to 45 sec. elapse from time exposure is completed to

time plate is ready for viewing. Cost of producing xeroradiographic image is estimated at around 50% less than for film, for quantity production.—*General Electric X-Ray Dept., Milwaukee 1, Wis.*

Literature Available

ELECTRICAL EQUIPMENT

Amplifier, All Transistor.....Designed for analog computation and amplification for low-level d.c. signals such as produced by strain-gage transducers or thermocouples, amplifier is covered in Bul. 3003. 242G Beckman Instruments.

Anodes, Impressed Current.....Corrosion resistant cast-iron alloy for use in anode fabrication is described in bulletin DA/lb. Applications and design details are included. 242H Duriron Co.

Batteries.....You'll find the full story on Goulds "Thirty" industrial truck battery in Bulletin GB1567B. It gives full construction details and engineering specifications for three sizes. 242I Gould-National Batteries.

Batteries.....Bulletin describes Gould Super Dreadnaught batteries. Gives details of battery construction, including Tite-Seal posts, basic Z grids, rubber separators, etc. Send for Bul. GB 1668-B. 242J Gould National Batteries.

Batteries....."Compact Power by Yardney" includes data sheets giving physical and electrical specifications of cells and batteries—from a fraction of an ampere hour to thousands of ampere hours. 242K Yardney Electric Co.

Batteries, Industrial.....Revised catalog and data sheets give details on Exide's line of F batteries in plastic jars. Capacity ratings are greater through use of plastic jars, and jars are leakproof. 242L Electric Storage Battery Co.

Batteries, Industrial.....Revised, complete reference catalog on motive-power batteries discusses important features of Exide-Ironclad batteries for industrial trucks and mine vehicles. 242M Electric Storage Battery Co.

Batteries, Industrial....."So You're Going to Buy an Industrial Battery" helps you select the most economical battery for your application. Four-point program covers all aspects of selection and use. 242N Gould-National Batteries.

Batteries, Stationary.....Catalog describes improvements on stationary batteries which are expected to extend service life up to ten per cent and reduce maintenance requirements. Details, in form 5907. 242O Elec. Storage Battery Co.

Cables, Armor.....Booklet covers in interlocked armor cable that is designed specifically for primary & secondary feeders in industrial power distribution systems & for generator leads, etc. Bulletin 19-555. 242P General Electric Co.

- Cable, Electric**.....28-page booklet "How to Insulate a Cable" explains four methods for applying insulation to electrical conductors. Helps user to choose the right cable for his needs.
243A Okonite Co.
- Cable, Interlocked-armor**.....Bulletin DM 5606 contains full information about Anaconda Duralox Cable. Metal tape armor affords high protection against damage—no conduit needed.
243B Anaconda Wire & Cable Co.
- Circuit Breakers**....."FB" current limiting circuit breakers protect against fault currents of 1000 to 150,000 amperes. Small in size, quick in action. Available in several models. Bulletin 3004-A.
243C I-T-E Circuit Breaker Co.
- Circuit Breakers**.....FB current limiting circuit breakers provide complete current limiting protection against fault currents of 1000 to 150,000 amperes. Send for free Bulletin 3004-A.
247 I-T-E Circuit Breaker Co.
- Clutches, Electric**.....Electro Clutch, element for the modern machine tool, is simple, compact and economical. These features make it a valuable contribution to machine tool industry. Request Bulletin.
243D I-T-E Circuit Breaker Co.
- Connectors & Panels**.....Panels provide flexible, centralized control in transferring any number of thermocouples. Connectors permit fast, making and breaking of thermocouple circuits. Bul. 23-E.
243E Thermo Electric Co.
- Contacts, Electrical**.....28 p. catalog, "Baker Electrical Contacts" details contact materials, material characteristics, types of contacts and applications to industry. Numerous designs.
243F Baker & Co.
- Controls, Electrical**.....Covers the features of oil-tight heavy duty pushbuttons, selector switches, indicating lights, covers and enclosures. Also includes accessories and dimensional data.
243G Cutler-Hammer.
- Converters, Torque**.....Bulletin describes Twin Disc's 1500 Series Single-Stage Torque Converter. Contains illustrations & tables on converters fluid circuit, horsepower & rpm capacity. Bulletin 508.
243H Twin Disc Clutch Co.
- Diode**.....2 p. sheet covers temperature limited diode type designed for service as a RMS detector for differential voltmeters, for a-c voltage and current stabilizers and similar uses.
243I Superior Electric Co.
- Doors, Automatic**.....Two catalogues describe "Prest-O-Matic" electric industrial door units, fire door operators and cold storage door assemblies. Request your copies now.
243J Clark Door Co.
- Drive System**.....Modification of the Varidyne system, covered in Specification Sheet Sec. 400, p. 29, and Bulletin F-1910, permits soft starts, inching and jogging of a remote variable-speed motor.
243K U. S. Electrical Motors.
- Drives, Motor**.....8 p. bulletin describes motor drives with positive pulley adjustment, ranging from 1/2 to 25 hp. Includes information on selection, engineering features, etc. Bulletin 1610-B1P.
243L Worthington Corp.
- Drives, Speed**.....Makes available literature describing Century's Selective Speed Drives, 1 to 150 hp. Offers a wide range of closely controlled speeds. Request your copy of Bulletin No. 11-IP1.
243M Century Elec. Co.
- Ejectors**.....Engineering data covers the complete range of Elliott steam jet ejectors including single-stage, special corrosion-resisting, and various multi-stage types. Available on request.
243N Elliott Co.
- Ejectors**.....Penberthy ejectors (with no moving parts to get out of order) are available in bronze, iron, stainless steel, plastic and other materials in standard and made-to-order designs. Catalog 512R.
243O Penberthy Injector Co.
- Electric Hoists**.....Operating features and specifications of LeTourneau hoists are listed in Bulletin 401-S1. In 3 to 15 ton capacities, units take 37% less head room, control to 0.008 in.
243P R. G. LeTourneau, Inc.
- Electrical Connectors**.....Bulletin P 3157-5 explains how Saf-T-Arc receptacles, plugs and connectors assure complete safety, even under overload. Made of cast aluminum housings and enclosures.
243Q Russell & Stoll Co.
- Electrical Equipment**.....12 p. catalog describes electrical equipment for cranes and monorail systems, including copper wire, bar, t-bar and enclosed conductors. For details, see Bulletin E-156.
243R Industrial Crane & Hoist.
- Electrodes, Welding**.....Complete line of resistance welding electrodes and accessories described in 28-page, 2-color catalog. Applications, specifications and dimensions of various components.
243S Ampeco Metal.
- Enclosures, Motor**.....New concept in protected enclosures for industrial a.c. motors described in Bulletin B-2501. Protection better than drip- or splashproof designs yet max. temp. rise is only 40 C.
243T Reliance Electric & Eng. Co.
- Engines**.....16-page Bulletin 257 details four-cycle diesel, dual-fuel and spark ignition gas engines, 640 to 2,150 hp. Ratings, outline dwgs. and all dimensions for preliminary planning are on data sheets.
243U Nordberg Mfg. Co.
- Floodlighting, Mercury Vapor**.....How you should use mercury-vapor floodlighting, together with technical information for evaluation, is contained in 16-page bulletin, "Mercury Vapor Floodlighting."
243V Crouse-Hinds Co.
- Gearmotors**.....Complete line of gearmotors, jointly manufactured by Louis Allis Co., leader in field of electric motors and Foote Bros. Co., leader in gears and gear drives. Described in Bul. 1001.
243W Louis Allis Co.
- Gearmotors**.....Information on gearmotors and package drives is given in booklet DB-3650. Horizontal, vertical, right angle, open, enclosed and explosion-proof units are shown.
243X Westinghouse Electric Corp.
- Generators, Pulse**.....Bulletin presents information on features, applications, specifications and description of type LG-30 pulse generator. For complete details, company offers Catalog L.4058.
243Y Radio Corp. of America.
- Generators, Turbine**.....Bulletin on turbine generators covering 1500 to 15000 KW range. Includes information on types and applications, turbine and generator construction, etc. Bulletin 1960C-P.
243Z Worthington Corp.
- Lighting Equipment, Fluorescent**.....36 p. bulletin contains descriptions, illustrations and lighting data on 394 Benjamin industrial fluorescent lighting units. Company gives bulletin B on request.
243AA Benjamin Electric Mfg. Co.
- Lighting Units**.....Holophane fluorescent unit for general indoor lighting. Light weight Luminaire gives full prismatic control; offers advantages in installation and maintenance. Bulletin 1-50M.
243BB Holophane Co.
- Lights, Flood**.....Illustrated catalog 156 covers entire line of cast aluminum floodlights in 48 pages. Includes complete lighting performance tables for high-efficiency projector lamps.
243CC Stonco Electric Products Co.
- Motor Drives, Variable Speed**.....New Reeves Vari-Speed Motor drives, sizes 200 and 300 are complete variable speed power packages for installations 1 through 5 horsepower. Models in Cat. CE 32-M571.
243DD Reeves Pulley Co.
- Motor Starter-Circuit Breakers**.....Design, construction & performance of circuit breaker & motor starter Unilets give safety & ease of wiring, installation, maintenance. Bulletin BH.
243EE Appelon Elec. Co.
- Motor Starters & Contactors**.....Complete line of motor starters and contactors shown in 12-page Bulletin 14B8615 assure full rated capacity, maximum protection, longer life and easy maintenance.
243FF Allis-Chalmers Mfg. Co.
- Motor Units**.....Rugged in construction and simple in design, Chapman Motor Units insure longer life with fewer repairs. Smooth, accurate and trouble free operation. For details, request Catalog 51.
243GG Chapman Valve Mfg. Co.
- Motors**.....Bulletins 51X8581 and 51X-8582 translate to bulletin form the messages on motor maintenance told by two A-C colored slide films, "How to Make a Motor Go and Go," "How to Take Step Seven."
243HH Allis-Chalmers Mfg. Co.
- Motors**.....Integrated field coils plus Silco-Flex insulation provide superior motor protection... under any operating conditions. Request copies of Coil Bulletin 05R8525 and Insulation Bulletin 05R8341.
243II Allis-Chalmers Mfg. Co.

Literature Available

Motors—
Motors, Explosion-Proof

Motors......Describes features of open drip-proof motors in NEMA re-rated ratings of ½ to 40 hp (Type G) and in non-re-rated ratings of ½ to 100 hp (Types AP and APWW). Bulletin 51B6210G.
244A Allis-Chalmers Mfg. Co.

Motors......Bulletin describes design features of totally-enclosed, fan-cooled motors in NEMA re-rated ratings of ½ to 30 hp and in non-re-rated ratings of ½ to 100 hp. Send for Bulletin 51B7225D.
244B Allis-Chalmers Mfg. Co.

Motors......Over 2500 types of fractional hp motors have so far been designed for use in business machines, aircraft equipment, electronic controls, automation systems, etc. Bulletin.
244C R. A. Boehm Co.

Motors......Choosing a Century motor, Performance-Rated to fit your job, is merely a matter of minutes when you use company's handy Application Guide. For your copy, request Form 1700.
244D Century Elec. Co.

Motors......Data Book shows how & why the New Standard, smaller motors actually outperform the larger heavier ones. Weight savings to 40% plus space savings. Bulletin No. 6-1P1.
244E Century Elec. Co.

Motors......Bulletin discusses consolidated line of industrial quality electric motors... new and improved materials, designs and operating features. Company gives details in Bulletin 1-1P1.
244F Century Electric Co.

Motors......Part winding starting is available on popular size Century motors up to 400 hp, polyphase, in drip proof, enclosed explosion proof frames. "Where Low Starting Current is Required."
244G Century Electric Co.

Motors......Diehl offers Consolidated Motor Catalog and Price List No. CE-9-3540. Long experience in designing and manufacturing motors for industry to meet special requirements, problems.
244H Diehl Mfg. Co.

Motors......"Synchronizer" describes large motors & controls, enclosure protection for large A-C motors, silicone protection, etc. Chemical Industry Number 200-SYN-41.
244I Electric Machy. Mfg. Co.

Motors......"Synchronizer" contains articles on use and applications of E-M Synchronous Motors. Includes motor maintenance chart, information on motor upkeep, etc. Vertical Motor No. 200-SYN-43.
244J Electric Mach. Mfg. Co.

Motors......Elliott C-W Dripproof Motor provides best in mechanical protection, insulation, bearings, rigid construction. Company makes complete details available in booklet.
244K Elliott Co.

Motors......Elliott C-W type N motors are designed for the utmost in dependability. They will withstand abuse. For information on performance and features, request Bulletin PB 6000-6.
244L Elliott Co.

Motors......Fairbanks-Morse design and manufacture set the standard of performance for motors that fulfill NEMA B, C and D requirements. Bulletin 1150 includes details on F-M Copperspun rotor.
244M Fairbanks, Morse & Co.

Motors......Company offers information on motorized reducers called Line-O-Motor, combining the advantages of integral motor-reducer units with the versatility of separately mounted motors.
244N Foote Bros. Gear & Mach.

Motors......Complete condensed motor catalog covers: cross reference between old and new NEMA ratings both hp and dimensions; current pricing for 1/20 through 1000 hp; standard motor modifications.
244O Marathon Elec. Mfg. Co.

Motors......8 p. folder describes an electric motor, called Actionator unit, for the operation of rotary, slip-stem and butterfly valves, dampers and other final elements in automatic control systems.
244P Minneapolis-Honeywell Co.

Motors......Bulletin A-2501 describes in photos and captions the complete line of a-c and d-c motors, gearmotors, motor controls and motor-generator sets manufactured by Reliance Co.
244Q Reliance Electric & Eng. Co.

Motors......Features: good enclosure, copper and iron, the best bearing lubrication system, tough, resistant insulation. Add up to designed durability. Full information available in Bulletin No. B-2504.
244R Reliance Elec. & Engrg.

Motors......4 p. booklet describes a line of right angle gear motors from ¼ through 5 hp. in all enclosures. Several cutaway drawings indicate construction and operation. Request a copy.
244S Sterling Electric Motors.

Motors......Descriptions and illustrations of open-type Uniclosed designs, totally-enclosed and explosion-proof types, Varidrives, Syn-crogers, and right-angle worm gear models. Bulletin 1878.
244T U. S. Elec. Motors.

Motors......Describes standard & explosion-proof enclosed motors, featuring corrosion-resistant cast iron frames, improved winding insulation & heavy duty ball bearings. Bulletin No. MU-203 & MU-132.
244U Wagner Elec. Corp.

Motors......Bulletins describe open type or totally enclosed motors featuring: more power in less space, corrosion resistant frames, needed protection, longer bearing life. See Bulletins MU-202 and MU-203.
244V Wagner Electric Co.

Motors......Motors to power pumps, agitators, compressors and blowers. Offers diversified line of standard motors, from 1/6 to 500 hp, readily adapted to your requirements. Information in Bulletin MU185.
244W Wagner Elec. Corp.

Motors......Company offers information on their line of standard electric motors. Also increment type motor and starter combinations, jet pump motors, hermetic motors, etc. Bul. MU-185.
245 *Wagner Electric Corp.

Motors, Chemical......Bulletin describes features of totally-enclosed, fan-cooled and explosion-proof chemical motors 1 to 100 hp (Types GZ, GZZ, AZ, AZZ, APZ, APZZ). Bulletin 51B8477.
244X Allis-Chalmers Mfg. Co.

Motors, Chemical......Motor specifically designed and constructed to withstand corrosive conditions encountered in chemical plants, oil refineries, sulphur plants, etc. See Bulletin 1050.
244Y Louis Allis Co.

Motors, Chemical......Bulletin PB 6000-8 describes remarkable Elliott C-W totally enclosed chemical motors. Protective features include specially insulated windings, rotating slinger guard.
244Z Elliott Co.

Motors, Direct Current......Bulletin describes direct-current motors, ½ through 200 hp, and motor-generator sets up through 220-kw output. Copies of Bulletin 53B8424 are available.
244AA Allis-Chalmers Mfg. Co.

Motors, Drip-Proof......For operating efficiency choose a Century Motor—Performance-Rated to bring out the top performance engineered into your equipment. Full details in Bulletin No. 1-5P1.
244BB Century Elec. Co.

Motors, Electric......Line of L.A. open drip-proof motors feature: modern styling, improved lubrication, greater protection, dependable insulation, etc. For complete details, see Bulletin 1700.
244CC Louis Allis Co.

Motors, Electric......12-page Application Guide 102 makes selection of electric motors easy for all popular applications. Guide tells type needed, dimensions and other pertinent data.
244DD Century Electric Co.

Motors, Electric......Wagner Increment Motor-Starter Combinations provide low cost control, meet the polyphase motor starting recommendations of the AIEE-EEI-NEMA. Bul. MU-128 and MU-195.
244EE Wagner Electric Corp.

Motors, Explosion-Proof......Improvements in Louis Allis explosion-proof motors meet latest demands of abusive chemical service. They are also tough-shelled and corrosion-resistant. Bulletin 800.
244FF Louis Allis Co.

Motors, Explosion-Proof......Complete information on explosion-proof motors: 2 to 100 hp. UL approval Class I, "C" and "D"—Class II, "E", "F" and "G." Request Bulletin 6-1P45.
244GG Century Elec. Co.

Motors, Explosion Proof......Company's line of totally enclosed explosion proof motors with rugged frame design for improved performance in hazardous locations described in Bulletin 1200.
244HH Fairbanks, Morse & Co.

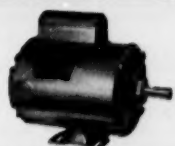
* From advertisement, this issue

Reduce Down Time—Power your Equipment with Dependable Wagner Motors

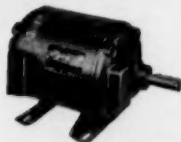
Sixty-six years of experience goes into the building of Wagner Motors. Their reputation for reliability, their electrical characteristics, price and prompt delivery make them a sound choice for your equipment.

Whatever your motor requirements may be—single-phase or polyphase... $\frac{1}{8}$ or 500 horsepower—Wagner can offer a standard motor that is entirely dependable in its specific application. A few of the many motors in the Wagner line are shown below.

FRACTIONAL HP



TYPE RK — Capacitor-start Induction. For general purpose applications. Single-phase. Rigid or resilient mounting. 48 frame: $\frac{1}{8}$ or $\frac{1}{4}$ hp. 56 frame: $\frac{1}{2}$ through $\frac{3}{4}$ hp. Also available in integral ratings through 5 hp.



TYPE RA — Repulsion-start Induction. For general purpose applications. Single-phase. High starting torque—low starting current. $\frac{1}{8}$ through $\frac{3}{4}$ hp. Also available in integral ratings through 15 hp.



TYPE RB — Split-phase Induction. For easy starting applications. Single-phase, resilient mounting. 48 frame: $\frac{1}{8}$, $\frac{1}{4}$ or $\frac{1}{2}$ hp.



TYPE RP — Polyphase Squirrel-cage Induction. General purpose, normal torque. 56 frame: $\frac{1}{4}$ through $\frac{3}{4}$ hp.

INTEGRAL HP

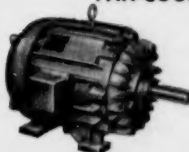
DRIP-PROOF



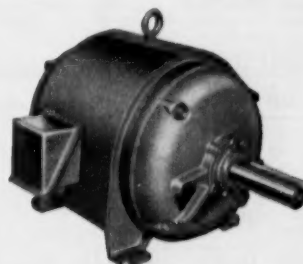
TYPE DP — Squirrel-cage Induction, corrosion resistant cast iron frames. 1 through 125 horsepower.



TOTALLY ENCLOSED FAN-COOLED



**TYPES EP
AND JP**
Standard and explosion-proof. Squirrel-cage Induction, corrosion resistant cast iron ribbed frames, 1 through 30 hp—smooth frames, 40 through 250 hp.



OPEN TYPE POLYPHASE SQUIRREL CAGE

TYPE RP — Drip-proof. Suitable for all general purpose applications. Available in ratings 150 through 500 hp.

OTHER WAGNER MOTORS

In addition to a complete line of standard motors, Wagner also furnishes Increment Type Motor and Starter Combinations... Wound Rotor Polyphase Motors... Jet Pump Motors... Vertical and Flange Mounted Motors... Hermetic Motors... Gear Motors and Direct-Current Motors. Consult the nearest of our 32 branch offices, or mail coupon today for full information on the complete Wagner line.



9157-10A

Wagner Electric Corporation

6407 Plymouth Ave., St. Louis 14, Mo.

Please send Bulletin MU-165 on your complete line of Motors.

NAME _____

POSITION _____

COMPANY _____

ADDRESS _____

CITY & STATE _____

Literature Available

Motors—Explosion-Proof—
Starters, Motor

Motors, Explosion Proof.....Discusses features and maintenance of induction motors, 1 through 30 hp., for use in hazardous locations. Details on Tri-Clad 55 motors in Bulletin GEA-6341.
246A General Elec. Co.

Motors, Fan-Cooled.....Six basic advantages of Robbins & Myers new line of re-rated fan-cooled motors are explained in Bulletin 500-A. Motors are available in ratings from 1/2 to 40 hp.
246B Robbins & Myers.

Motors, Flat Type.....Illustrated bulletin 3461 describes both Type DIE totally enclosed, non-ventilated and Type DIP totally enclosed fan-cooled flat-type motors. Lists ratings, compares sizes.
246C Diehl Mfg. Co.

Motors, Flat-Type.....Flat-type motor, in totally-enclosed fan cooled or non-ventilated designs, provides maximum horsepower with minimum size. Company gives details on request.
246D Diehl Mfg. Co.

Motors, Gear.....Furnishes information on line of Gear Motors—1 to 125 hp (parallel); 1/2 to 3 hp (right angle or parallel); A.C. or D.C., speed to fit your need. Details in Bulletin No. 4-1P31.
246E Century Elec. Co.

Motors, Gear.....Bulletin presents various types of U. S. Synroger motors. Shows comparative advantages of gearmotors, lists ratings from 1/2 to 30 hp. with gear ratios up to 10:1. Bulletin 1880.
246F U. S. Elec. Motors.

Motors, Heat Resistant.....Bulletin M100 describes line of motors that can operate with shafts exposed to temperatures up to 2,100 F. Table lists standard ratings and frame sizes.
246G Kaybee Engineering Co.

Motors & Pumps.....Adaptable line of hydraulic pumps and motors used for hydraulic power for machine tools, automatic door openers, materials handling equipment. Request Bulletin 810-A now.
61 Eastern Industries.

Motors, Pumps, Hydraulic.....Flexibility, reversibility, and dependability earmark Roper units as highly desirable where safety is paramount. Data on single and double shaft models in Bulletin 22.
246H Geo. D. Roper Corp.

Motors, Standard.....Sterling Advanced Design, normal-speed electric motors are described in 12-page brochure 194. Several applications are illustrated and much valuable selection material is included.
246I Sterling Electric Motors.

Motors, Synchronous.....Describes Allis-Chalmers large end-shield bearing synchronous motors. Meet demand for high degree of protection with maximum accessibility. Bulletin 05B8305.
246J Allis-Chalmers Mfg. Co.

Motors, Synduction.....Provide dependable constant speed, simplicity of operation and low first cost in a variety of industrial applications requiring 40 hp and below. Details in Bulletin 51B8440.
246K Allis-Chalmers Mfg. Co.

Motors, Traction.....Traction motor for low-voltage electric vehicles aids operation: more efficient up-hill climb; easy installation; maximum loads; lower battery drain; minimum care. Bul. GEA-6532.
246L General Elec. Co.

Motors, Varidrive.....With a U. S. Varidrive motor you can get instantly all the speeds needed for every operating condition. For informative full color references, request Booklet Nos. 1882 and 1797.
246M U. S. Elec. Motors.

Motors, Vertical.....Company offers information describing a vertical solid shaft motor, conforming to dimensional standards recently adopted by NEMA. Describes operation, features, etc.
246N U. S. Elec. Motors.

Motors, Vertical Pump.....Louis Allis vertical pump motors used with vertical turbine pumps will conserve floor space and provide a more compact streamlined installation. See Bulletin 1250.
246O Louis Allis Co.

Motors, Weather-protected.....Company-designed weather-protected motors need no protective enclosures, provide ventilating system, removable aid ducts, stator assembly. Bulletins 51B8606A, 05B7894.
246P Allis-Chalmers Co.

Motors, Wound Rotor.....Designed for use where high starting torque with low starting current is needed, power supply is limited, with intermediate speeds, smooth acceleration. Bulletin 51B8195A.
246Q Allis-Chalmers Mfg. Co.

Power Centers.....Company's dry-type power centers can be put closer to load, are lighter, packaged, simple to maintain, and fire-safe. Savings can pay for initial investment. D. D. 34-150.
246R Westinghouse Electric Corp.

Power Supplies.....Magnetically regulated power supplies are described in a 4 p. catalog. Covers filament power supplies, telemetering and strain gage power supplies, computer power supplies.
246S Gulton Industries.

Power Supplies.....An Engineering Data Wall Chart is offered, giving tables on decimal equivalents, temperature conversion, wire size & current ratings, mechanical & electrical conversion tables.
246T Perkin Engineering Corp.

Power Unit.....A power unit that provides variable-frequency current to vary the speed of 3-phase a.c. induction motor is covered in Specification Sheet Sec. 400, p. 17 and Bulletin F-1910.
246U U. S. Electrical Motors, Inc.

Rectifiers.....Miniature, 10-kilowatt silicon rectifiers are capable of operation in an ambient temperature range of from -65°C. to 200°C. Additional information has been made available upon request.
246V General Electric Co.

Rectifiers, Mercury Arc.....Bulletin describes mercury arc rectifiers which provide reliable, low cost power conversion in steel mills, chemical plants, transportation systems, etc. Bul. 12B8494.
246W Allis-Chalmers Mfg. Co.

Rectifiers, Silicon.....Small size, light weight, high efficiency rectifiers are available for electrochemical equipment, d-c power supplies etc. Bulletin GET-2689 brings complete details.
246X General Electric Co.

Rectifiers, Silicon.....Application notes on the 4JA60 series of small high current-silicon rectifiers. Useful to designers of aircraft electronic equipment, automation equipment, etc. Bul. ECG-148A.
246Y General Electric Co.

Relay, Motor-Protecting.....A device that protects any 3-phase, induction motor against failure is described in leaflet "Type TS Motor Protecting Relay." Units are custom-made for given motor.
246Z Electrical Service Co.

Relay, Protecting.....Leaflet tells how Type TNS bus-bar protecting relay protects a transformer and its connected load of 3-phase induction motors against voltage unbalance, single phasing, overload.
246AA Electrical Service Co.

Relays, Electronic.....Data Sheet describes electronic relay designed to be safe for water-bath operation. Four-way panel switching, "fail-safe" operation, and DC circuit. Request your copy.
246BB Arthur S. LaPine & Co.

Selector, Motor.....12-page Bulletin B-2103-1 gives information on how to select a.c. motors for specific applications. Free for the asking, it is valuable tool for any motor user.
246CC Reliance Electric & Eng. Co.

Standards, Lighting.....Copy of the R.L.M. Standard Specifications for Industrial Lighting Units contains important specifications revisions on both incandescent and fluorescent industrial units.
246DD RLM Standards Institute.

Starters.....ZHA high voltage starters are only 30 inches deep. Save valuable floor space, provide more accessibility and convenience than before. Self-contained, safe. Bulletin 8130-F.
246EE Electric Controller & Mfg.

Starters, Combination.....Square D Combination Starters save space and time. Mount and wire one device instead of two. Neater, more attractive installations. Details in Bulletins 8538 and 8539.
246FF Square D Co.

Starters, Compression.....Allen-Bradley compression resistance starters afford solution for smoothing out starting current and torque of heavily loaded squirrel cage motors. Bulletin 640 and 740.
246GG Allen-Bradley Co.

Starters, Motor.....You can install an Allen-Bradley starter and forget it. Only one moving part—the solenoid plunger. No leakages, bearings, pins, or pivots to rust. Request your Catalog.
246HH Allen-Bradley Co.

* From advertisement, this issue



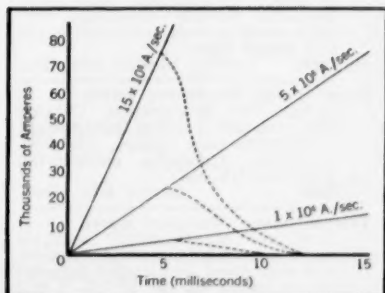
D-C CIRCUIT BREAKERS



Type FB-20 single pole circuit breaker; 2000 amperes continuous, 1000 volts d-c.

NEW "FB" CURRENT LIMITING CIRCUIT BREAKER

Now...complete current limiting protection against fault currents of 1000 to 150,000 amperes



Peak let-through current for FB circuit breaker with 1000 ampere trip.

Small in size, these FB d-c circuit breakers with fast current limiting action provide a tremendous protective capacity. In the event of a fault, powerful springs open the contacts before the current has a chance to rise to its maximum potential.

Even in circuits where the rate of rise might approach 15,000,000 amperes per second, let-through current will not exceed 80,000 amperes. In most applications, it will never exceed 30,000 amperes—and total interrupting time is only 12 milliseconds. This quick action reduces the magnitude and duration of fault currents—thus eliminating mechanical failures and heat damage.

FB circuit breakers are available in either single or double pole models and with continuous current ratings of 1200, 2000, 3000 and 5000 amperes and up to 1000 volts d-c. They are available with either stationary or drawout mounting. Write for Bulletin 3004-A. I-T-E Circuit Breaker Company, Switchgear Division, 19th & Hamilton Sts., Philadelphia 30, Pa.

Visit the I-T-E Exhibit at the 26th Exposition of Chemical Industries December 2 to 6, N. Y. Coliseum

I-T-E CIRCUIT BREAKER COMPANY • Switchgear Division

IN CANADA: EASTERN POWER DEVICES LTD.



New Electrical Equipment

1957 INVENTORY

Literature Available

Starters, Motor—
Transmissions, Variable Speed

Starters, Motor..... Bulletin describes company's nonreversing automatic across-the-line starter for high voltage squirrel cage motors on pumps, air and refrigeration compressors, etc. Bulletin 1159.
248A Allen-Bradley Co.

Starters, Motor..... Complete line of high tension starters for large synchronous and squirrel cage motors has the Allen-Bradley air break, high voltage contactor as basic unit. Bulletin 6080.
248B Allen-Bradley Co.

Starters, Motor..... Built-in wide range of ratings for squirrel-cage, wound-rotor & Synchronous motors for full or reduced voltage, reversing or non-reversing. Details in Bulletin 14B6410B.
248C Allis-Chalmers Co.

Starters, Motor..... Complete line of synchronous motor starters for all low voltages and for 2200-4800 volt power systems. Complete protection, easily installed. Ask for Bulletins 8200 and 8820.
248D Electric Controller & Mfg. Co.

Starters, Motor..... Line of high-voltage combination starters for squirrel-cage, wound-rotor and synchronous motors described in bulletin 2-850. Increases overload and short-circuit protection.
248E Federal Pacific Electric Co.

Starters, Oil-Break..... EC&M oil-break starters are designed for dusty, corrosive atmospheres. Quickly installed because starters are shipped with all internal wiring complete. Bulletin 8130-CH.
248F Elec. Controller & Mfg. Co.

Transformers..... 2 p. data sheet WE-L25714 describes company's Powerstat variable transformer type 2PF10 for applications where current requirements do not exceed 1.0 ampere.
248G Superior Electric Co.

Transformers..... Varicell, a source of stabilized-regulated adjustable DC voltage from AC lines, is easy to operate. Bulletin covers purpose, provisions and operation. Details in Bulletin V1051.
248H Superior Elec. Co.

Transformers..... Written for industrial maintenance people, booklet "Timely Tips on Transformer Maintenance" covers general inspection procedures, classification, drying out and connections.
248I Westinghouse Electric Corp.

Transformers, Arc Furnace..... Features: tap changers, core-type construction with inherently strong circular-concentric windings, dust-tight bus-bar seal, etc. Request Bulletin GEA-6236.
248J General Elec. Co.

Transformers, Control..... Publication gives voltage ratings, frequency, frame size, weight, price and specification data on auto transformers, control panel and machine-tool transformers.
248K General Electric Co.

Transformers, Unit Substation..... Both liquid-filled and dry-type transformers are designed to meet distribution requirements. Ratings through 2000 kva, 15 kv and below. Bulletins TU-205 & TU-214.
248L Wagner Elec. Corp.

Transformers, Variable..... Illustrated bulletin describes Powerstat variable transformers for high frequency applications with specifications, outline dimensions and ratings. Bulletin P257H.
248M Superior Electric Co.

Transformers, Variable..... Bulletin covers connections, motor drives, Powerstat type 20, types 116-216, types 1126-1226, types 1156-1256, oil-cooled models, explosion-proof models, etc. Bul. P550.
248N Superior Elec. Co.

Transformers, Variable..... Powerstat variable transformer has new flexibility with isolated secondary winding on single core, a source of adjustable low voltage output. Bulletin SE-L5571.
248O Superior Electric Co.

Transformers, Variable..... Types 136 and 236 Powerstat variable transformers presented in Bulletin P354. Type 10 Powerstat variable transformer covered in Bulletin P252. Also price list is made available.
248P Superior Electric Co.

Transformers, Variable..... Powerstat line offers standard air-cooled type transformers for manually-operated or motor-driven duty; oil-cooled models; explosion-proof units. Ask for Bulletin P856G.
248Q Superior Electric Co.

Transmission Equipment..... 12 p. technical brochure describes line of power transmission equipment, including flexible couplings, variable speed pulleys, universal joints and motor bases.
248R Lovejoy Flexible Coupling.

Transmission Machinery Power..... Dodge 1956 Engineering Catalog discusses line of power transmission machinery—base plates, clutches, couplings, sprockets, engineering data, pulleys, etc.
248S Dodge Mfg. Corp.

Transmissions, Variable Speed..... Line of "Maureymatic" variable speed transmission provides simple, low cost speed adjustment for machines using up to 10 hp V-belt Drives. Catalog is available.
248T Maurey Mfg. Corp.

Turbines..... Coppus turbines are furnished with either a regular wheel or a wide bucket "L" type wheel. They range from 150 hp. down to fractional in 6 frame sizes. Bulletin 135.
241 Coppus Engineering Corp.

* From advertisement, this issue

Complete rectification
"packages" for operation
of electrolytic cells...



GERMANIUM RECTIFIERS

kw — any rating up to 30,000 Kw
(or higher)

voltage — any rating up to 400
volts (or higher)

efficiency — up to 96%

Literature on request

See Our Exhibit at the
26th Exposition of
Chemical Industries,
Dec 2-6, Booth, 905

Rectifier Division

SEL-REX CORPORATION

ROUTE 10, NEW JERSEY (Offices: Detroit, Chicago, Los Angeles)

✓ Code numbers for R.S. Postcard (inside back cover)

Agitator, Drum

Inserts in bung. (249A)

... Lightweight, portable mixer mounts easily in threaded bung of standard 55-gal. metal drum con-

tainer. This model A agitator mixes drum contents thoroughly.—*Preneco Products, Inc., Hazel Park, Mich.*

Agitators

For heavy duty. (249B)

... Line of heavy duty brine agitators has been modified to include patented centrifugal vapor seals. Seals posi-

tively prevent entry of liquid through mounting flange.—*Ruthman Machinery Co., Cincinnati 2, Ohio.*

Agitators

Provide maximum agitation with minimum power. (249C)

... Improved types of propeller and rake agitators have been designed and patented in Australia for mining, chemical and food processing industries. Hydraulic lift-rake agitator has high-efficiency gear box and unique

arrangement actuated by hand-operated hydraulic ram lifts rakes higher than has been conveniently possible before.—*Warman Equipment (W. A.) Pty. Ltd., Kalgoorlie, Western Australia.*

Bin, Blending

For bulk solids. (249D)

... Free-flowing bulk solids with varying physical characteristics or chemical analysis may be blended to homogenous mixtures on a continuous basis through use of new method—

metal or concrete bin which contains a series of overlapping baffles to deflect solids outward to sides of the container.—*Hewitt-Robins, Inc., Stamford, Conn.*

Dryer-Blender

In large size. (249E)

... 8-ft. glassed steel conical dryer-blender is larger version of one introduced by Pfaudler in 1955. Unit

is suitable for plastics, chemicals, dyestuffs, pharmaceuticals.—*Pfaudler Co., Rochester, N. Y.*

Dryer-Vacuum

Dries materials rapidly, gently. (249F)

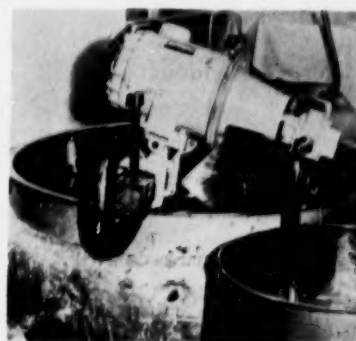
... Rota-Cone vacuum dryer uses combination of principles for rapid, thorough and gentle drying of broad range materials. During drying cycle, dryer rotates continuously to expose

all particles evenly to drying action from cone walls and hot atmosphere. Particles are mixed intimately without abrading.—*Paul O. Abbe, Inc., Little Falls, N. J.*

Emulsifiers, Ultrasonic

Claim faster, more complete emulsion. (249G)

... Ultrasonic emulsifier is available from new source in extended line of equipment to satisfy wide range of process needs. Equipment is said to be considerably less expensive and easier to maintain than other types of ultrasonic emulsifiers. It emulsifies materials faster and more completely. Three models are available: Rapisonic, for either high or low viscosity emulsions; Autosonic, providing continuous supply of emulsion which is geared automatically to process volume; Dispersionic, for abrasive emulsions.—*Sonic Engineering Corp., Stamford, Conn.*

**Feeder, Air**

Twelve-sided hood. (249H)

... Rising 70 ft. above grade, intake hood feeds air to blowers on a fluid coker at Avon Flying A refinery of Tidewater Oil Co., Associated, Calif. Twelve-sided hooded

is 21 ft. across and 12 ft. high; suction line is 5½ ft. dia. Fiberglass lines hood and line to deaden noise of air entering opening.—*Bechtel Corp., San Francisco 4, Calif.*

Feeder, Batch

Handles dusty, corrosive or abrasive solids. (249I)

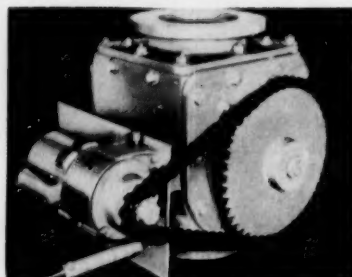
... Pilot model 700N batching scale handles and discharges nickel oxide ore to reduction furnace in large nickel-producing plant. Rotary feeder charges gateless, tipping-type weight bucket which is suspended from scale. Cycle timer controls automatic charging and discharging of weight bucket.

Scale platform, levers and weight beam are supported by patented Thayer—Plate leverage system which allows millions of weighings without any loss of accuracy. Sizes are available for handling from 100 lb. to 100 tons per hr.—*Thayer Scale & Engineering Corp., Rockland, Mass.*

Feeder, Rotary

Handles free-flowing granular solids. (250A)

... A-S-H type "B" rotary feeder, featuring accurate feed control and positive shut-off, was developed for such heavy duty applications as handling dry pulverized and granular material. Measured flow of material results from constant rotor speed and a rotor and shoe design that permits specific amount of material to fall into each pocket. Excess material can't bypass the rotor.—*Allen-Sherman-Hoff Co., Wynnewood, Pa.*



Feeder, Self-Powered

Operates by force of falling material. (250B)

With Merchen self-powered feeder, dry, free-flowing materials are fed at rates from 200 to 2,000 lb./min. Feeder operates on principle of balanced weights. Force produced by feed material falling onto impact pan

is balanced by preset counterweight. Position at which counterweight is set determines the size of the feed-gate opening above the impact pan.—*Wallace & Tiernan, Inc., Belleville 9, N. J.*

Feeders, Solids

Feed accurately up to 20 tons per hr. (250C)

... Wide range of solids can be fed at rates up to 20 tons per hr. within $\pm 1\%$ of set rate by L-I-W feeder. Feeders are integral control systems which incorporate sensing, comparing and correcting elements of most advanced instruments. Loss-in-weight feeding principle insures proper de-

livery of materials and accurate record of performance because memory is built in. For higher feed rates a duplex feeder is used so that one hopper can be filled while the other is being emptied.—*Omega Machine Co., Div. of B-I-F Industries, Inc., Providence, R. I.*

Hopper, Weigh

Provides "live bottom" discharge of solids. (250D)

... Accurate weighing and discharge of fluffy or sticky materials is provided by bell-shaped weight hopper with motor-driven screw discharge

mechanism. Hopper was designed for difficult-to-handle materials like long asbestos fibers, rubber crumbs.—*Richardson Scale Co., Clifton, N. J.*

Mixer, Continuous

Disintegrates or disperses small agglomerates. (250E)

... You can avoid agglomerated balls or pellets in mixture of dry or semi-dry materials by combining components into a uniform mixture with Turbulizer high-speed continuous mixer. Mixer also produces fluffing

action on dry powders; will disperse from 10 to 30% liquid into dry solids within a short time. Basically machine finishes mixtures from other types of mixers.—*Strong-Scott Mfg. Co., Minneapolis 13, Minn.*

Mixer, Continuous

For solids, either dry or slurried. (250F)

... Gasmaco line of continuous mixers and pug mills can be furnished as part of a system complete with bins, buckets, elevators, conveyors, if required. Mixers handle any size material from dust to $1\frac{1}{2}$ in., either dry or in a slurry. Among features

are box-type construction that prevents catching dirt; safety over mixing portion of trough; diversion plate at discharge to eliminate segregation; high-quality drive with roller bearing to support shaft.—*Gas Machinery Co., Cleveland 10, Ohio.*

Mixer-Dispenser

Combines two operations within single unit. (250G)

... With Duplex Dispenser, mixing and dispersing are done simultaneously, thus eliminating handling, labor and cost of performing two operations. Unit combines mixing action of rugged, diamond-shaped agitator

rotating on angular axis with mulling, shearing and impinging action of powerful revolving dispenser head. Duplex Dispenser is available in 60-gal. size.—*Troy Engine & Machine Co., Troy Pa.*

Mixer, Paint

Shortens mixing time. (250H)

... Jiffy mixer, fitting into practically any standard electric or pneumatic portable power tool, shortens mixing time and produces uniform smooth mixtures. Big advantage of device is freedom from splashing and

danger of cutting into container walls. Solids can be thoroughly freed from container bottom and sides as operator moves mixer about through the container.—*Jiffy Mixer Co., San Francisco 5, Calif.*

POTENTIALS

FOR '58

Point to the demand for essential Plant changes and improvement—Just what will be needed and what will it cost?

As a producer of Chemicals and Chemical Products, you've already considered the factors involved, and you know the end-results you want to achieve, but how can it best be done quickly and efficiently?

The INTERNATIONAL folks at Dayton have the knack of adapting themselves to your problem—of showing you how you can hold down capital investment, thru changes and modification here and there, or by replacement of certain other profit-eating, wasteful equipment.

IF MIXING AND EXTRUSION, Grinding and Pulverizing enter the picture, then INTERNATIONAL ENGINEERING are the logical people to contact for experience and friendly cooperative effort. They are not only qualified to re-design and adapt your present equipment in some cases, bringing it up to date, but they actually manufacture in their own plant, the world's most extensive line of Chemical Processing machinery.

*Keeping Step
with Progress*

RIBBON MIXERS

BALL MILLS

CONICAL BLENDERS

CONTINUOUS BALL MILLS

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Engineering, Inc.**
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New Feeders & Mixers

Mixer, Ribbon

Triple-action agitation and drop-bottom discharge. (252A)

... As little as 5 to 10 grams can be distributed by Triple-Action mixer throughout a ton of dry solids in less than 5 min. blending. Uniformity of distribution is within 0.5% throughout the batch. Drop construction of

tub permits immediate discharge of mixed batch. Interior of the tub and agitator mechanism are more easily accessible for cleaning and maintenance.—*Strong-Scott Mfg. Co., Minneapolis 13, Minn.*

Mixer, Small

Big-mixer features. (252B)

... Small-size, double-paddle mixer has almost all features found in manufacturer's larger mixers. Suitable for

small batch mixing of paints, chemicals and inks.—*Cincinnati Hildebrand Co., Cincinnati 23, Ohio.*

Mixer, Water

Controls temperature of process water within close limits. (252C)

... Not only is type N Hydroguard thermostatic mixer more compact and accurate than previous models, but it even guards against its own failure. If either hot or cold water supply fails, mixer automatically closes the

other port. Should thermostatic liquid-filled motor fail, fail-safe provision closes hot and cold water poppets. Mixer's accuracy holds temperature of discharge water within ± 2 deg.—*Powers Regulator Co., Skokie, Ill.*

Literature Available

FEEDERS & MIXERS

Agitating Equipment......For those interested in agitation in laboratory scale high pressure reactions Autoclave Engineers offers a free reprint of an April, 1957 article in *Industrial & Engrg. Chemistry*.
252D Autoclave Engineers.

Agitating Equipment......Use Netco Flomix to combine liquids and solids as they flow through a pipe line. Also offer side entering and portable and tripod models. Details in Bulletins 531, 532, 551.
252E New England Tank & Tower.

Agitators......Features for heavy duty Brine Agitators...totally enclosed fan-cooled motor driven Agitators include unique, patented centrifugal and vapor seals. Bulletin 15602-A.
252F Ruthman Machy. Co.

Agitator, Drum......Technical features of the Prencro drum agitator in Data Sheet 2. Ready reference chart shows agitation time needed for full range of specific gravities in mixtures.
252G Prencro Products.

Agitators & Mixers......Patented stand-pipe around propeller shaft assures positive agitation and circulation, wearing plate prevents sand-up on shut-down. Request a copy of Bulletin A2-B4.
252H Denver Equipment Co.

Agitators, Side Entering......Mixing results now can be guaranteed for any process requirements through a selection procedure outlined in a brochure. Also includes design details, sizes, dimensions.
252I Industrial Process Engineers.

Autoclaves......Magnetically agitated autoclaves for pressures to 30,000 p. s. i. No stuffing box or external moving parts. Standard units from 100 ml. to 1 gallon capacity. Bul. 1051-B.
143b *Autoclave Engineers.

Autoclaves, Stirred......A range of standard design, high pressure stirred autoclaves up to 40,000 p.s.i. Available with rotating impeller and dasher type agitation. Request Bulletin 1257.
143a *Autoclave Engineers.

Blender & Proportioner......Bulletin J-100 explains the features of the Blendrol device that maintains accurate flow rates in closed loops and blends or proportions in open loop systems.
252L Jordan Co.

Blenders......Company offers 12-page Facts Folder entitled "Xacto Precision Blending System" about line of precision proportioners which automatically and accurately blend many liquids.
252M Bowser Inc.

Blenders......Information on portable low-cost dry mix and liquid blenders, "Porta-Blend". Describes all features, giving assembly diagrams, specifications & dimensions. Bulletin NPB6-613.
252N Strong Scott Mfg. Co.

Blenders......Company offers information on slow speed, high capacity blender, "Uni-Blend". Blends molasses, animal fats or fish solubles. Describes features, giving assembly diagrams, etc.
252O Strong Scott Mfg. Co.

Blenders......Pilot plant blending to largest production runs are handled by standard models of Sturtevant blenders with capacities from 10 cu. ft. to 900 cu. ft. Full details in Bulletin No. 080B.
252P Sturtevant Mill Co.

Blenders, Dry-Batch......Speed up production with 4-way mixing; shorten shut-downs with "open-door" design. Batches from 500 to 40,000 lbs. Company makes bulletin available on request for details.
252Q Sturtevant Mill Co.

Blenders-Filters-Meters......Bowser Metering controls inventory; filtering improves quality; blending saves manhours. Company makes details available in "Digest." Request your copy.
252R Bowser, Inc.

Benders, Hydraulic......One man can carry and operate this hydraulic bender to quickly make uniform bends. Easily operated by hand or can be used with a power pump. Bulletin No. D-217.
252S Greenlee Tool Co.

Blenders, Liquid-Solids......Unique one-step method intimately blends liquids into dry solids; perfect dispersion, absolute uniformity. Request Catalog 14 for more information on production models.
252T Patterson-Kelly Co.

Blenders, Liquid-Solids......P-K liquid-solids blenders intimately blend any liquid, regardless of viscosity, into dry solids in one step. Request Bulletin 15A (lab units), Bul. 7-15-A (production).
252U Patterson-Kelly Co.

Blenders, Rotary......Company's blending continues during discharge with no segregation or flotation. Self-cleaning, dust-sealed, fully or semi-automatic. Carbon steel, or Monel. Bulletin 080B.
441 *Sturtevant Mill Co.

Blenders, Solids......An 8-page data booklet on Tri-Rib blenders details features of these units whose performance is reported to shorten time needed to produce uniform blending of materials.
252W Bridges Engineering Co.

Blenders, Spiral......Catalog gives specifications in light, medium and heavy duty blenders offered, information on special order design and service. Points out money-saving & time-saving improvements.
252X Amer. Welded Tank & Machy.

Dispenser-Homogenizer......Tri-Homo Pioneer model features: rotating trap basket at the feed; abrasion resisting wear rims; portable or fixed installations; discharges product at higher level. Details.
252Y Tri-Homo Corp.

* From advertisement, this issue

1957 INVENTORY

Dissolvers.....If your operation could profit by the use of high energy intensive dissolvers, or other equipment designed to increase the speed and efficiency of process operations, see Bulletin 236.

253A Dravo Corp.

Dissolvers.....Several models of the new Cowles dissolvers for metallic dispersions are now available, making many reactions commercially practicable for the first time. Technical Bulletin 21-1957.

253B Morehouse-Cowles, Inc.

Dissolvers.....For processors of liquid-liquid, gas-liquid & solid-liquid products, including chemicals, paints & inks, plastics, pharmaceuticals, foods & beverages. Many models. Request details.

253C Morehouse-Cowles.

Dissolvers.....Speeds on Cowles Model 1-VG are variable from 1900 rpm to 5900 rpm (with impeller speeds of 1600 to 6150 fpm depending upon the size impeller used). Information available.

253D Morehouse Cowles.

Dissolver-Mill.....How the Morehouse-Cowles dissolver-mill combination offers an improved method for preparing asphalt-water suspensions is detailed in application Bulletin 20-1957, available.

253E Morehouse-Cowles.

Dry Blenders & Ribbon Mixers.....Ribbon mixers are so designed that any proportion of various materials can be thoroughly mixed. Conical dry blenders are the standard of lower blending costs. Bul. 78.

253F International Engineering.

Dryer-Blenders.....Solid one-piece construction of inner vessel for maximum strength, no joints or clamps to break up the drying surface area. Complete details made available to you in Data Sheet 26.

253G Pfaudler Co.

Dryer-Blenders, Conical.....Blenders reduce drying time from days to hours. Glassed inner surface is highly resistant to corrosion and product adhesion. Details in Data Sheet No. 26.

253H *Pfaudler Co.

Equipment, Feeders.....A combination surge bin and feeder for continuous feeding of dry, damp, wet, sticky, difficult to feed materials. Write for a copy of Catalog 5607.

253I *Pulva Corp.

Feeder-Conveyor-Elevator.....Bulk-Flo is endless chain with spaced solid flights in close-fitting enclosure, for moving free-flowing materials in horizontal, inclined, and vertical directions. Book 2475.

253J Link-Belt Co.

Feeder, Chemical.....Feeder Model E featured in Bulletin 575 is an 18-8 stainless steel unit for controlled feeding of liquids with precision, dependability and low cost. Handles wide range of rates.

253K Clarkson Co.

Feeder, Chemical.....A new air or water operated diaphragm feeder, model 19130, designed to handle concentrated chemicals more safely is described in bulletin 1913 now available.

253L Proportioneers, Inc.

*From advertisement, this issue.

DON'T MISS OUR DISPLAY!

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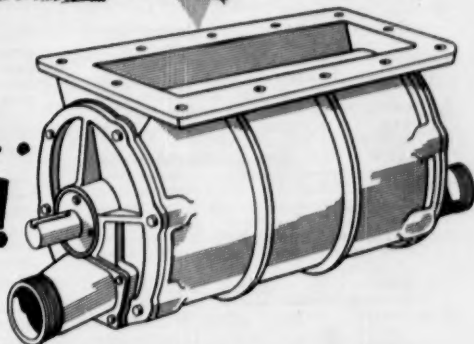
14 x 20 BLOW-THRU FEEDER



26th Exposition of CHEMICAL INDUSTRIES NEW YORK DEC. 2-6

BOOTH
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Experienced engineers will be on hand to discuss your problems with you. Here's your chance to examine first hand the most widely accepted line of rotary airlocks in the entire industry. See for yourself the design features which have made...

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New Feeders & Mixers

1957 INVENTORY

Literature Available

Feeder, Gravimetric Belt—
Mixers

Feeder, Gravimetric Belt......Features of the Hi-Weigh Model 37-20 feeder are listed in Bulletin 35-N62. Covers unique Sens-A-Gram controller and gives specifications. Request a copy.
254A Omega Machine Co.

Feeder Valves, Rotary Vane......Bulletin describes company's rotary vane feeder valves, precision-built airlocks to feed powdered products into a conveyor line, eliminate air leakage. Bul. 24-B.
416J Sprout-Waldron Co.

Feeder, Volumetric......8-page Bulletin 2-P2 informs you about the Omega universal feeder that feeds any dry material over a 40 to 1 adjustable feed rate from 1 to 5,000 lb./hr. Request a copy.
254C Omega Machine Co.

Feeders......Describes and illustrates Fuller's line of roll and vane-type feeders and rotary valves. Feeders handle a large variety of dry pulverized and granular materials. Bulletin No. F-5.
254D Fuller Co.

Feeders......Manzel chemical feeders are simple in design, ruggedly built, unfailingly accurate. Adjustable for metering any desired amount of liquid from 0 to 1 gallon per minute. Catalog.
254E Manzel Div.

Feeders......Two types of Loss-in-Weight Feeders—Duplex Model 31 and Simplex Model 30A—can feed solids at rates up to 40,000 lbs./hr. with an accuracy of $\pm 1/2\%$ of set feed rate. Request data.
254F Omega Machine Co.

Feeders......Bulletin data—capacities, accuracies, ranges, types of materials handled, etc.—on many types of feeders, line slakers and proportioning pumps. Details in Bulletin 10-N1.
254G Omega Machine Co.

Feeders......Rotary Airlock Feeders for practically every process requirement. Standard duty, heavy duty and Blow-Thru types, suited to higher or lower pressure in systems or lines. Bulletin P-55.
254H Prater Pulverizer Co.

Feeders, Disk......How the Mecro SRV variable-speed disk feeders accurately control feed rate of crushed or ground material is told in a descriptive bulletin. Units feed from 1 to 80 tons/hr.
254I Manufacturers Equipment Co.

Feeders, Liquid......Continuous loss-in-weight feeder for liquids excels in accuracy, capacity, memory, flexibility and feed range. Application versatility & feeding mechanisms in Bul. 31-M3.
254J Omega Machine Co.

Feeders, Rotary......Type B rotary feeder for heavy duty materials handling is described in data sheet DVC. Photos and cut-away dwgs. show simple design and construction of unit. Selection aids.
254K Allen-Sherman-Hoff Co.

Feeders, Self-powered......Technical Bulletin TP-68-M presents self-powered feeder that controls feed of dry, free-flowing materials at rates from 200 to 2,000 lb. per min. Operating range 10 to 1.
254L Wallace & Tiernan, Inc.

Feeders, Solid......Omega continuous loss-in-weight feeder for solids causes decrease in processing cost, manpower, and plant space with increase in quality and efficiency. Bulletin 30A-M3.
254M Omega Machine Co.

Feeders, Vibrating......Jeffrey electric vibrating feeders handle a tremendous variety of materials, densities from 4 to 400 lbs. per cubic foot, manual or automatic controls. Catalog 870.
254N Jeffrey Mfg. Co.

Feeders, Volumetric......Rotodip Model 65 discussed in Bulletin 65-H12B is a rotary volumetric feeder with simplified design. Features described and illustrated including typical installation.
254O Omega Machine Co.

Feeders, Wet Reagent......Accurately meter minute quantities of liquid from 0 cc to 2000 cc per minute. Float valve in tank permits connection of feeder to bulk storage device. Bulletin F6-B9.
254P Denver Equipment Co.

Homogenizer-Mixers......24-page booklet describes complete Eppenbach line including the high-speed, high-shear homogenizer-mixer for complete, "no-vortex" mixing of cosmetics, etc. Catalog 600.
254Q Gifford-Wood Co.

Homogenizer-Mixers......High speed, high shear, homogenizer-mixer for mixing of chemicals and pharmaceuticals to produce emulsions of small particle size, long life. Catalog 402R-2.
254R Gifford-Wood Co.

Homogenizer-Mixers......A high speed, high shear homogenizer-mixer for complete, no-vortex mixing of chemicals, cosmetics and pharmaceuticals to produce emulsions of small particle size. Cat. 600.
128 Gifford-Wood Co.

Homogenizer......Gaulin Homogenizers stop separation, accent taste & color, improve texture, flow lubricity, speed chemical reactions & dispersion of ingredients & reduce material needed. Literature.
254T Manton-Gaulin Mfg. Co.

Homogenizers & Dispensers......Homogenizers work at high pressures, by tremendous velocity and energy gradients. Sub-Micron disperser handles pigments—abrasive dispersions. Buls. H-55, SMD-55.
254U Manton-Gaulin Mfg. Co.

Homogenizers, Laboratory......Laboratory homogenizers available on rental basis. Machines for exploring new Gaulin dimensions of particle control for improved mixing. Bulletin LH-55.
254V Manton-Gaulin Mfg. Co.

Mills, Colloid......Eppenbach Colloid Mills are easy-to-use, easy-to-clean, easy-to-install. They are a long-term investment in service, economy and efficiency. Catalog available upon request.
254W Gifford-Wood Co.

Mills, Colloid......RE colloid mill is a highly advanced, two-stage design which provides continuous micrometer control for producing superior emulsions or dispersions. Details in Bulletin C-57.
254X Manton-Gaulin Mfg. Co.

Mills, Laboratory......Bulletin presents information necessary to determine from six standard models offered, the most suitable mill for any requirement. Includes illustrations. Bul. 203.
254Y Farrel-Birmingham Co.

Mixers......Choose the mixer that best suits your needs and available space. Companion sizes of each Philadelphia mixer drive type mount interchangeably in complete assemblies. Catalog.
255 Phila. Gear Works.

Mixers......Offers addendum to technical supplement HM on use of "American" Homomix in chemical mixing without a mixing tank. Discusses general theory of mixing. Addendum No. 1.
254AA American Well Works.

Mixers......Nauta Mixer features uniform, quick mixing of any number of dry materials, similar or different in characteristics. Describes features and industries where used. Catalog 374.
254BB Blaw-Knox Co.

Mixers......Bulletin 1483 covers complete lines of double-arm, spiral-ribbon and vertical mixers for use in laboratory, pilot plant or commercial production. Units available in wide range of capacities.
254CC Capitol Products Corp.

Mixers......Company issues a new bulletin providing operating feature information & specifications on Double Paddle Mixers. Illustrates both Tilted Heat & Vertical Raising Head Models. Bulletin 200.
254DD Cincinnati Hildebrand Co.

Mixers......Day mixers are ruggedly built, precisely engineered, for 24 hour operation. Available in 5, 200, 350, 550, 660, 1000 gal. pasting capacities. Details are available in Data Sheet I-300 CM.
254EE J. H. Day Co.

Mixers......Day twin motion pony mixers have twin spindles which operate at new, higher speeds. They produce a homogeneity of mix, eliminate product contamination. Bulletin I-502-PM.
254FF J. H. Day Co.

Mixers......Describes the Day Imperial Mixer. Built for heavy duty, engineered for precision. It incorporates advanced engineering features to assure high production at low cost. Bulletin 600.
254GG J. H. Day Co.

Mixers......Day Jumbo Mixers meet requirements, heavy loads. Equipped with two roller bearings mounted on heavy fabricated supports. Available in 600- to 3850-gallon capacities. Bulletin 800.
254HH J. H. Day Co.

Mixers......Describes Super Agitators and Mixers. Patented stand-pipe around propeller shaft assures positive agitation. Patented wearing plate prevents sand-up on shut-down. Request Bulletin A2-B4.
254II Denver Equipment Co.

* From advertisement, this issue

the choice is yours!

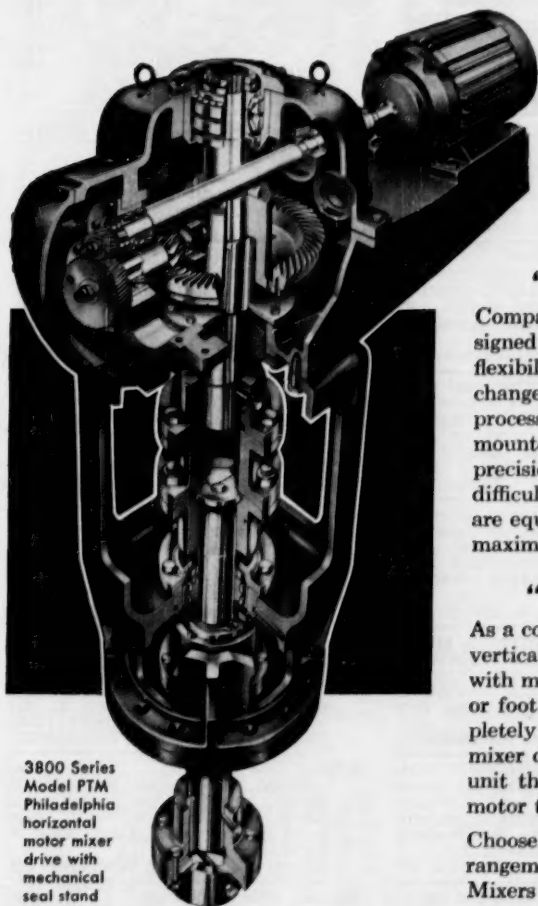
see how at Booth #164 26th Annual Chemical Show

choose the Philadelphia Mixer that best suits your needs and available space . . .

- Companion sizes of each Philadelphia Mixer drive type mount interchangeably in complete mixer assemblies.
- Choose a vertical or horizontal motor drive as best meets your requirements . . . get identical construction in other components of open tank or pressure vessel mixer assemblies.



Series "MV"
Philadelphia
vertical motor
mixer drive



3800 Series
Model PTM
Philadelphia
horizontal
motor mixer
drive with
mechanical
seal stand
assembly.

"3800" SERIES

Compact and versatile "3800" Series mixer drives are specifically designed to minimize headroom requirements . . . maximize durability, flexibility, and trouble-free service life. Readily accessible helical change gears facilitate changes of mixer shaft speeds to suit varying process conditions. The Series "3800" drive utilizes standard foot-mounted motors. Highest drive efficiencies are possible through use of precision spiral bevel-helical gear arrangement. Designed for the more difficult fluid mixer applications, Philadelphia "3800" Series drives are equipped with heavy duty precision roller bearings spaced with maximum span for extreme stability of all shafts and long service life.

"MV" SERIES

As a companion line to the "3800" Series, Philadelphia "MV" Series vertical motor mixer drives offer straight-through shaft arrangement, with motor and gear reducer vertically in-line. Utilizing either flange or foot-mounted motors, Philadelphia "MV" Series drives are completely interchangeable with "3800" Series units for use in complete mixer drive assemblies mounting on open or closed tanks. Here is a unit that meets industry demands for highest quality in a vertical motor turbine and paddle type mixer drive.

Choose the design that best suits your required process piping arrangement . . . or available space. Send for the new Philadelphia Mixers Catalog today.

philadelphia mixers

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INDUSTRIAL GEARS & SPEED REDUCERS • LIMITORQUE VALVE CONTROLS • FLUID MIXERS • FLEXIBLE COUPLINGS
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New Feeders & Mixers

Literature Available

Mixers— Mixers, Slurry

- Mixers.....** If you have a process entailing critical operating conditions, request information on durable Eastern Mixers. Offers engineering assistance in selection of proper mixers. Request catalog series I. 256A Eastern Industries.
- Mixers.....** Exclusive counter-rotating impellers produce finer, faster mixing. Interchangeable heads, new precision face type magnetic seals for complete and effective shaft seal. Brochure 564-2. 256B Gabb Special Products Inc.
- Mixers.....** Company makes available Confidential Mixing Data Sheet. Helpful checklist enables you to develop a complete technical description of agitation required for your process. Bulletin B-107. 256C Mixing Equipment Co.
- Mixers.....** Mix-Mullers for chemical and process industries. Covers Simpson mulling principle; mulling of dry, wetted and plastic mixtures, etc. "Mulling for the Chemical & Process Industries." 256D National Engrg. Co.
- Mixers.....** Choose the mixer that best suits your needs and available space—three basically different drive types with interchangeable companion sizes in complete fluid mixer assemblies. Catalog. 256E Philadelphia Gear Works.
- Mixers.....** Philadelphia Fluid Mixers offer more horsepower capacity per dollar & are easier to install & less expensive to service. Perform smoothly & economically. See Bulletin A-156. 256F Philadelphia Gear Works.
- Mixers.....** Standardization, high production and complete control of all manufacturing by Philadelphia Gear Works assures your outstanding mixer performance at minimum cost. Bulletin A-256. 256G Philadelphia Gear Works.
- Mixers.....** Bulletin outlines how the Simpson Mix-Muller is used in preparation of electronic porcelain, tile, structural clay and brick, refractories and other ceramic bodies. Bul. 452A-5M-7.56. 256H Simpson Mix-Muller Div.
- Mixer.....** "A New Star is Born" outlines advantages offered by the T. L. Smith turbine-type mixer. It blends solids or liquids and liquids with greater speed and completeness than ever possible before. 256I T. L. Smith Co.
- Mixers.....** Company offers information on Turn-Rotor Continuous Mixer, featuring positive moisture control. Gives assembly diagram, list prices and dimensions and describes features. 256J Strong Scott Mfg. Co.
- Mixers.....** Company offers information on their slow-speed Molasses Mixer, a high capacity mixer designed to handle bulky ingredients. Gives assembly diagrams, list prices & dimensions. 256K Strong Scott Mfg. Co.
- Mixers, Angular.....** Diamond-shaped agitator of the Troy angular mixer provides three-dimensional kneading, shearing, mixing action that breaks up agglomerates. Full details in Bulletin No. GP56. 256L Troy Engine & Machine.
- Mixers, Batch.....** Gruendler line of tilting batch mixers is constructed to handle a variety of materials and capacities. Available in many sizes and interior finishes. Bulletin B-12. 256M Gruendler Crusher & Pulv.
- Mixers & Blenders.....** Design features and specification tables are given in a 4-page Bulletin 557 on mixers, blenders, sifters and roll mills. Tables give pertinent dimensions, capacities and horsepower. 256N Cleveland Automatic Mach.
- Mixers, Chemical.....** Bulletin on Shear-Flow Mixer for mixing, homogenizing or dispersing; up to five times faster; counter-rotating impellers; reduces agglomerates & particle size; no operating torque. 256O Gabb Special Products.
- Mixers, Dispersal.....** This mixer disperses, mills and blends (as well as emulsifies) in one operation. Eliminates premilling and premixing. Gives you speed and power, plus easy cleaning. See Catalog 78. 256P Abbe Engineering Co.
- Mixers, Double Agitator.....** Company's continuous double agitator mixers provide controlled capacity, versatility, streamlined design and construction, readily accessible stuffing boxes. Bulletin 131-A. 416-7k *Sprout-Waldron Co.
- Mixers & Feeders.....** "Chemical Mixers and Feeders" an 8 p. brochure with illustrations and diagrams includes descriptions and performance data on Inflico mixers and feeders. 256R Inflico, Inc.
- Mixers, Fluid.....** Company offers a condensed catalog which shows all types of their fluidmixers; they promise efficient, dependable mixing without guesswork. Request Catalog B-109. 256S Mixing Equipment Co.
- Mixers, Fluid.....** Philadelphia Mixers Catalog A-27 contains comprehensive mechanical design information permitting catalog selection of complete paddle and turbine type fluid mixers. 256T Philadelphia Gear Works.
- Mixers, Horizontal.....** Clean, dustless Style "B" horizontal batch mixers load, blend and discharge rapidly, and disperse small amounts in huge volumes. Illustrations, specifications in Bulletin 128. 416-7I *Sprout-Waldron Co.
- Mixers, Liquid.....** Shear-Flow industrial mixers are discussed in a brochure which illustrates the size range, applications, specifications and exclusive features of this type unit. 256V Gabb Special Products.
- Mixers, Laboratory.....** You get as much as 20 years' service from a Lightnin Laboratory Mixer. Can run Model F at any speed up to 1600 RPM. Four other models to choose from Bulletin B-112. 256W Mixing Equipment Co.
- Mixers, Pipeline.....** Nettco Plomix for continuous pipeline mixing, increased product uniformity, simplified piping layouts. Suitable for high capacities, pressures and temperatures. Bulletin 531. 256X New Eng. Tank & Tower Co.
- Mixers, Pony.....** The rugged, heavy duty design characteristics of the Day pony mixers enables you to mix a stiffer, heavier paste, resulting in many advantages. Request your copy of Bulletin No. 500. 256Y J. H. Day Co.
- Mixers, Portable.....** Portable mixer mounting assembly allows adjustment up and down and right or left to any angle for the mixing action your process requires. Mixer Catalog. 256Z Alsop Engrg. Corp.
- Mixers, Portable.....** Versatile Eastern portable mixers can be quickly shifted from task to task to allow one mixer to serve many needs. Available from 1/20 to 5 H.P. Ask for Eastern Bulletin 520-A. 256AA Eastern Industries Inc.
- Mixers, Portable.....** Use in industry reduces costs, saves time, labor and secures better and more refined products. Catalog includes data on construction, dimensions, specifications, etc. Catalog B-108. 256BB Mixing Equipment Co.
- Mixers, Portable & Tripod.....** Nettco portable and Plange-Mounted mixers furnish drip-proof construction, high or medium speed, top efficiency drive, oversized bearings, etc. Specification Sheets. 256CC New Eng. Tank & Tower Co.
- Mixers, Pug Mill.....** Company offers information on efficient laboratory model pug mill mixers for small quantity mixes, for use with hot, cold, wet or dry mixes. Includes specifications & applications. 256DD Lindcraft Corp.
- Mixers, Ribbon.....** Bulletin describes eight sizes of ribbon type mixers, available with choice of six different agitator types. Working capacities ranging from 25 to 450 gallons. Bulletin 300. 256EE Cincinnati Hildebrand Co.
- Mixers, Side Entering.....** Company can furnish either standard packed stuffing box or mechanical seals. On most standard types either seal can readily be converted to the other, as desired. Bulletin 72-B. 256FF International Engineering.
- Mixers, Side Entering.....** Furnishes detailed information on features, typical applications, mechanical design, maintenance, shaft seals, methods of installation, etc., in Catalog B-104. 256GG Mixing Equipment Co.
- Mixers, Side Entering.....** Standard units available in 1/2 to 30 HP sizes, offering a variety of speed reduction designs, motor mounts, stuffing box modifications, etc. Request Bulletin 532. 256HH New Eng. Tank & Tower Co.
- Mixers, Slurry.....** Bulletin describes design variations, sizes, physical characteristics, capacities, special features and operation of Dorr slurry mixers. Includes illustrations. Bulletin 1141-R. 256II Dorr-Oliver.

* From advertisement, this issue

1957 INVENTORY

Mixers, Tank Top..... Model WT and Model T tank top agitators feature clean, efficient designs with minimum moving parts. Variety of motors, shafts, stirrers and supports. Bulletin 551.
257A New Eng. Tank & Tower Co.

Mixers, Top Entering..... Illustrated 32 p. Catalog includes advantages, typical installations, mechanical description, construction information, dimensions and selection tables, etc. Catalog B-102.
257B Mixing Equipment Co.

Mixers, Top Entering..... Makes available pertinent information on top-entering mixers (propeller type) ... for closed tanks, pressure & vacuum ... for open & loose-covered tanks. Catalog B-103.
257C Mixing Equipment Co.

Mixers, Triple Action..... Triple action mixers give uniform blending and mixing in 2 to 7 minutes with 99% thorough distribution of minor additives. Nylon seals between tub and shaft. Color Bulletin.
257D Strong-Scott Mfg. Co.

Mixers, Turbine..... Company offers Side Entering Propeller Mixer Bul., RDC Extraction Column Bul., Minerals Processing Bul., and General Turbo-Mixer Bul. New series of Turbo-Mixers in standard sizes.
257E General Amer. Transport.

Mixers, Vertical..... Information about company's line of vertical mixers equipped with "Thoro-Flo" feature is available in Bulletin 192. Patented Thoro-flow cuts costly recirculation time.
416-7m Sprout-Waldron Co.

Mixing & Blending Equipment..... Bul. LH-55 on laboratory homogenizers, Bul. C-57 on colloid mills, Bul. H-55 on homogenizers, Bul. SMD-55 on sub-micron dispersers. Also general technical assistance.
257G Manton-Gaulin Mfg. Co.

Mixing & Grinding Equipment..... #41L-10 gal. double arm kneader, #52TC-14" x 32" high speed roller mill, #130H-250 gal. change tank mixer & #130EL-1 gal. change can mixer.
257H Charles Ross & Son Co.

Mixing & Homogenizing Equipment..... Eppenbach colloid mills, homo-mixers and agi-mixers—their unique features and uses—are described in comprehensive catalog. Eppenbach Fact Book.
257I Gifford-Wood Co.

Mullers..... If you mix dry or semi-solid materials, "Mulling in the Chemical & Process Industries" will show you why and how Simpson Mulling can do a better, faster and more thorough blending job.
257J Simpson Mix-Muller Div.

Mullers..... Specifications, application data and general arrangement drawings of the 3-cu.-ft. capacity portable Mix-Muller are found in Porto-Muller bulletin now available on request.
257K Simpson Mix-Muller Div.

Poidometers..... Company's poidometers show superiority in weighing, feeding, recording, proportioning, mixing and blending of raw and finished bulk materials. Fast and automatic. Catalog 3-A.
B309 Schaffer Poidometer Co.

ALL OVER THE WORLD

In the Plants of One Company

The pictures shown here are of Abbé Dispersall Mixer installations in a few of the foreign plants of a world-famous manufacturer of cosmetics. There are many more. These mixers are used in the manufacture of tooth and other pastes.

The fact that this company has adopted Abbé Dispersall Mixers for pastes in its foreign plants (as well as in its domestic factories) is ample evidence of the superior performance of these mixers.

Here's What They Say About These

ABBÉ DISPERSALL MIXERS:

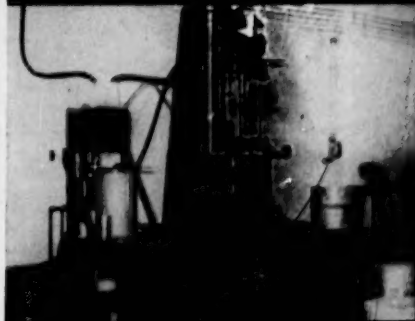
"They have met our requirements for a versatile piece of equipment suitable for relatively small scale production. They have the valuable quality of being easy to clean, which, as you can appreciate, is a decided advantage when more than one product is made in the same machine."

If You Are Mixing Liquids or Pastes...

ask us for a recommendation, as well as full details on the advantages of the Abbé Dispersall Mixer.



Abbé Dispersall Mixer... SWITZERLAND



Abbé Dispersall Mixer... COLOMBIA



Abbé Dispersall Mixer... VENEZUELA



Abbé Dispersall Mixer... DENMARK

ABBÉ ENGINEERING COMPANY
50 Church Street • New York 7, N. Y.

New Filters & Dust Collectors

1957 INVENTORY

Cleaner, Gas

For given pressure drop,
higher efficiency and flow.
(258A)

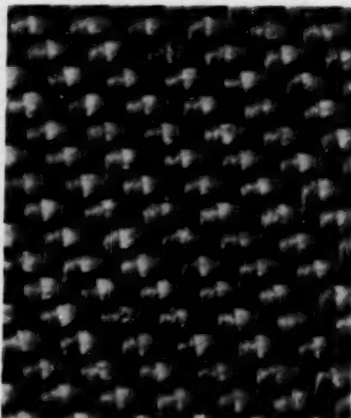
... Aerodynamic principles applied to gas flow enable Cyclo-trell mechanical collector to operate with fewer tubes per unit at lower total cost for given capacity and efficiency. Cyclo-

trell depends on centrifugal force generated in a bank of parallel cyclone tubes to remove suspended solids from gas.—*Research-Cottrell, Inc., Bound Brook, N. J.*

Cloths, Filter

Made from 100% PVC.
(258B)

... Now available commercially in the U. S. are a range of polyvinyl chloride fabrics for industrial filtration which don't swell in water; are stable to atmospheric and biological conditions; have tensile strength and elasticity which aren't affected by water or most aqueous solutions; are abrasion resistant; can be unplugged by washing reagents. Three types of fabric are Rhovyl, Fibravyl, Thermovyl. Rhovyl fabric is continuous multi-filament which ranges from 75 to 1,600 denier. Fibravyl fabric is staple fiber made from Rhovyl in different staple lengths and deniers from 1.5 to 6.4. Thermovyl fabric is more resistant to heat than either Rhovyl or Fibravyl.—*Rhodia, Inc., New York 22, N. Y.*



Collector, Hot Dust

Has no internal moving
parts.
(258C)

... Mikro-Pulsaire dust collector incorporates new method for cleaning filter elements. Air-jet, venturi-nozzle arrangement cleans filter elements on a revolving basis once a minute. Design keeps enclosure free of any moving parts, improves high-temperature dust collection, permits use of temperature-resistant filter media that

can't be used with any other type of bag filter. Since there are no internal moving parts, no lubrication is needed except on accessory equipment outside enclosure. Maintenance is practically nil; compact unit saves floor space.—*Pulverizing Machinery Div., Metals Distintegrating Co., Inc., Summit, N. J.*

Filter

Meets requirements of
modern plant processing.
(258D)

... These are some of the features incorporated in new IWF industrial filter to improve flexibility and performance: efficient high-flow backwash which eliminates disassembly for cleaning; choice of five basic sizes in numerous arrangements of multi-

ple units on both sides; four different filter elements to provide suitable septum for most process needs; high-polish, diatomite filtration with or without continuous body feed; ASME Construction.—*R. P. Adams Co., Inc., Buffalo 17, N. Y.*

Filter, Air

Cuts top cylinder wear
of heavy duty engines.
(258E)

... Dust laden plant air is no threat to engine life when intake air is filtered through Purolator dry-type Micronic air filter. Better than 99%

removal of dirt has been proven in all engines speed ranges. Filter can be replaced in seconds.—*Purolator Products, Inc., Rahway, N. J.*

Filter, Gas

Removes suspended matter
from gas streams.
(258F)

... High-pressure gas filter cleans gas streams of suspended material to protect equipment such as turbine expanders, compressors, pumps, nozzles, blowers. When tested with U. S.

Standard Fine Test Dust, filter elements are 99% efficient. Convoluted shape of the elements provides extended area.—*Purolator Products, Inc., Rahway, N. J.*

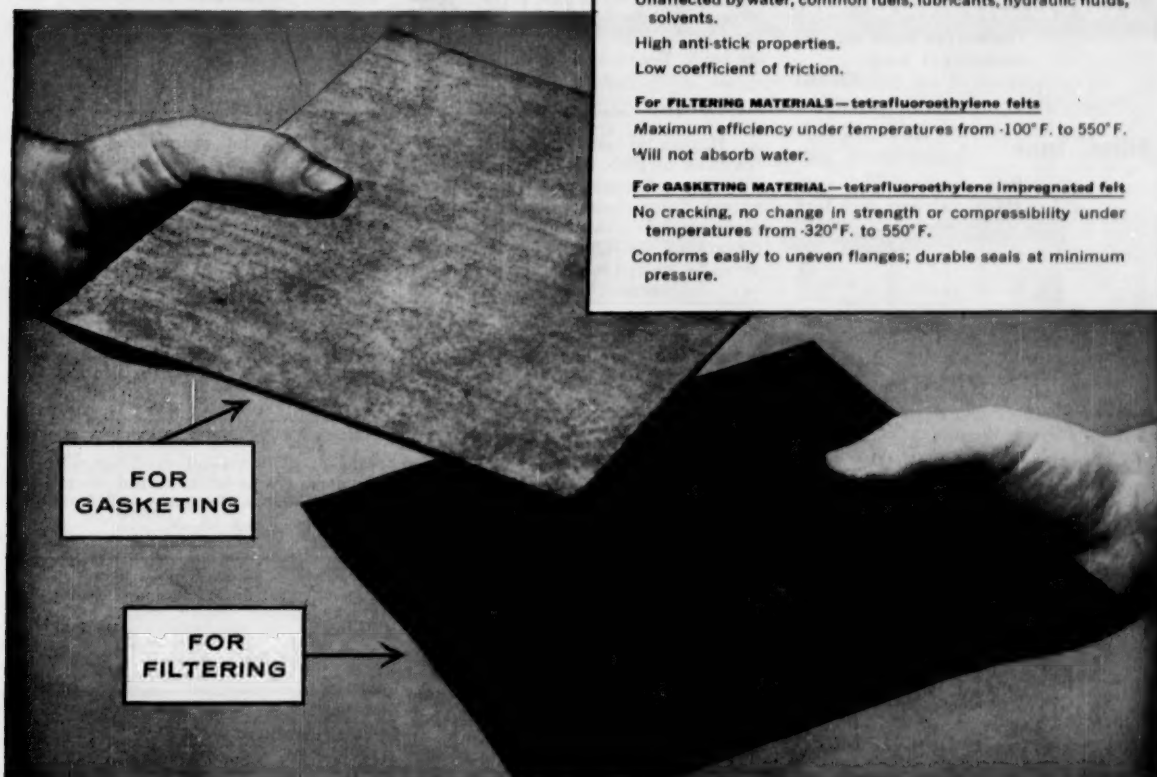
Filter, Pressure

Clarifies water at twice
rate normally expected.
(258G)

... Hi-Rate pressure filter's claim to superiority of performance in the field of water filtration is a two- to three-fold gain in operation over conventional units. And installation and operating costs are low: Total cost for clarifying water with Hi-Rate filter, based on 10-yr. life, is estimated

to be 1.3 mills per bbl. at rate of 1.39 gpm. per sq. ft. Hi-Rate filter systems are furnished complete; user has only to connect four inlet and discharge ports and the electrical service. At present, only the 310-sq.-ft. size is available.—*Dorr-Oliver, Inc., Stamford, Conn.*

Remarkable resistance to heat and harsh chemicals



PROPERTIES OF "ARMALON" FELTS GENERAL

Highly resistant to strong acids and bases at all temperatures. Unaffected by water, common fuels, lubricants, hydraulic fluids, solvents.

High anti-stick properties.

Low coefficient of friction.

For FILTERING MATERIALS—tetrafluoroethylene felts

Maximum efficiency under temperatures from -100° F. to 550° F. Will not absorb water.

For GASKETING MATERIAL—tetrafluoroethylene impregnated felt

No cracking, no change in strength or compressibility under temperatures from -320° F. to 550° F.

Conforms easily to uneven flanges; durable seals at minimum pressure.

New ARMALON® felts show exceptional service life in strong corrosives, temperatures up to 550° F.

Corrosion-resistant filters and gaskets of new "Armalon"® tetrafluoroethylene resin assure extraordinary long life felts where other materials fail entirely. They've proved their superiority in systems handling strong acids and bases—at temperatures from -320°F. to 550°F.

"Armalon" is the new felted form of Du Pont's "Teflon"® tetrafluoroethylene resin, available in two constructions—one for filtering, the other impregnated for gasketing†. "Armalon" is inert

to water, common fuels, lubricants, hydraulic fluids, solvents and corrosive chemicals.

FILTERS of "Armalon" remove fine particles at high flow rates with minimum pressure drop. Anti-stick property of "Armalon" means longer service life, easier cleaning.

GASKETS of "Armalon" seal securely and

last months, even years, longer than other materials. Advantages include substantial reductions in costly replacement shutdowns.

For more facts that may help you find a place for "Armalon" felts in your operations, fill out and mail the coupon. You'll receive Du Pont's free descriptive bulletin, including specifications.

*"Armalon" is Du Pont's registered trademark for its tetrafluoroethylene felts and impregnated felts.

**"Teflon" is Du Pont's registered trademark for its tetrafluoroethylene fiber.

†"Armalon" tetrafluoroethylene impregnated felt is covered by U. S. Patent 2,764,606.

DU PONT INDUSTRIAL COATED FABRICS



BETTER THINGS FOR BETTER LIVING... THROUGH CHEMISTRY

CHEMICAL ENGINEERING—Inventory Issue 1957

E. I. du Pont de Nemours & Co. (Inc.)
Fabrics Division, Dept. CE-711
Wilmington 98, Delaware

Please send me descriptive bulletin on "Armalon" felts.

Name _____ Position _____
Company _____
Address _____
City _____ State _____

Inquiry Code Number for This Advertisement-259

259

New Filters & Dust Collectors

Filter, Pressure

Discharges filter cake by centrifugal force. (260A)

... By using centrifugal force, Funda filter discharges cake at the end of each cycle without need for opening the tank. Because of discharge mecha-

nism, filter surfaces are designed to assure clear filtrate.—*A. G. für Chemie-Apparatebau, Mannedorf-Zürich, Switzerland.*

Filter, Tank

Self cleaning with individual valve on each leaf. (260B)

... Horizontal tank filter incorporates features to give optimum service on filtration of sugar. Design of individual filter elements provides complete, unobstructed drainage space for filtrate. Each filter plate has individually valved outlet complete with

sight glass and sample cock. Thus, leaking plate can be noticed immediately and taken out of service without removing entire filter from the line. Internal jet sprays make filter self cleaning.—*Sparkler Mfg. Co., Mundelein, Ill.*

Filter, Water

Removes particles as fine as 0.45 microns. (260C)

... Filtering up to 400 gph., MF Sub-micron filter removes submicroscopic particles that are found even in highly purified water. Unit can be used only

on such pure feed because even clear tap water will clog it quickly.—*Barnstead Still & Sterilizer Co., Boston 31, Mass.*

Leaf, Filter

Withstands rough handling. (260D)

... Rim-lok filter leaf is designed to assure that the cloth can't come out of the frame and the frame can't separate from the cloth cover. In this

leak-proof construction, filter cloth is held in frame without aid of rivets, bolts, solder.—*Multi-Metal Wire Cloth Co., New York 59, N. Y.*

Medium, Filter

Handles like metal plate. (260E)

... Rigimesh rigidized wire-mesh filter medium can be made by cutting, rolling, corrugating and welding without loss of original uniformity of mesh openings. Filter elements of Rigimesh are claimed stronger, lighter, resistant to corrosion and temperature and reusable. Limits of operation are: -65 to +900 F., vacuum to 10,000 psi., retension of particles from 2 to 2,000 microns.—*Pall Filtration Companies, Glen Cove, N. Y.*

Scrubber, Wet

Matches ductwork for size. (260F)

... Joy Microdyne wet-type dust collector can become part of an air duct and is reported to have efficiencies greater than that of any comparable wet-type collector. It's the first commercial dust collector to embody all fundamental principles of Greenberg-Smith impinger, long used as standard dust-measuring instrument by U. S. Public Health Service. With Microdyne, installation costs may be as little as 25% of total cost or at most 50% of total cost (compared with 75% of total cost for other wet scrubbers). Also, both initial and operating costs are claimed to be less. Dust collectors come in a wide variety of sizes.—*Joy Mfg. Co., Pittsburgh 22, Pa.*

➔ Want more information on any of these items? Just write its code number on one of the postcards inside the back cover, then mail it to us. It's that easy now.

Filtration Facts by HERCULES

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Hercules "Fact Finder" Installation Stories on Scores of Fields

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HERCULES FILTER CORP.

2000 STATE AVE. MAWTHORNE, N. J.

1957 INVENTORY

Literature Available

New Filters & Dust Collectors

Adsorbers, Vapor......Continuously remove hydrocarbon vapors, liquid hydrocarbons, water hydrocarbon emulsions, and dirt from compressed air and process gases. Full details in Bulletin SC1047.
261A Selas Corp. of America.

Cartridges, Filter......Bulletin describes the Hilco filter cartridge Type FFC for lubricating and straight mineral oil filtration, made of Hiltite, the improved fullers' earth. Bulletin F-152-1.
261B Hilliard Corp.

Collectors......20 p. illustrated bulletin describes Walker Process Rectangular Collectors, giving complete description of features, design, dimensions and applications. Bulletin No. 8W68.
261C Walker-Process Equipment.

Collectors, Centrifugal......Two new centrifugal collector designs are described in detail in a fully illustrated folder. Also included are complete specifications for 41 collector sizes.
261D Kirk & Blum Mfg. Co.

Collectors, Sludge......Circulating Collector accomplishes positive movement of sludge, along the most direct path to the draw-off, in the shortest time. Company gives complete information in Book 1982.
261E Link-Belt Co.

Comminutors......Brochure covers complete line of impact-in-air comminutors. Design variations of these continuous units reduce wet or dry solids, spray-blend wet and dry materials.
261F Motigraph, Inc.

Dust Collection Systems......"The Collection and Recovery of Industrial Dusts" describes three systems, the Cyclone, "SF" electric precipitator, and the combination Cyclone-precipitator systems.
261G Buell Engineering Co.

Dust Collectors......Mikro-Pulsaire collector cleans filter elements in a continuous cycle by the introduction of momentary jets of high pressure air. Bulletin 52A is available on request.
99 Metals Disintegrating Co.

Dust Collectors......AAF Type W Roto-Clone collects the finest, lightest dust particles by the ingenious addition of water sprays. It is compact, uses a minimum of water. Request Bulletin 272B.
261H American Air Filter Co.

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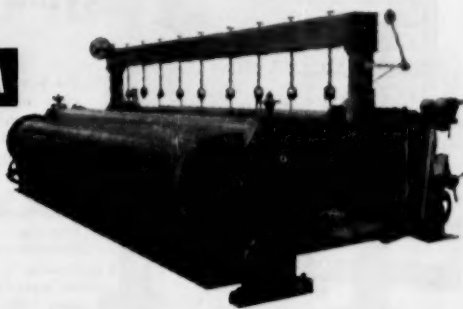
(Continued on p. 284)

NEW IDEAS and BETTER MEANS for SOLIDS-LIQUID SEPARATION

At the forthcoming Chemical Exposition we'll be happy to discuss your problems in relation to our research work and developments in metallic filter media, filter leaves, screens and special fabrications for better processing.

NEW FILTER MEDIA

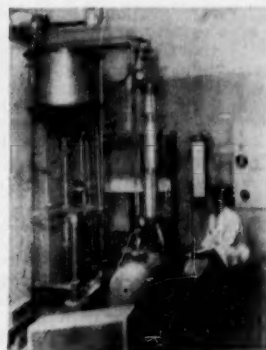
To the extensive line of metallic fabrics, woven on our own modern looms, we have added "Micromesh"—an ultra-fine weave cloth with particle retention as low as 10 microns. You'll also want to investigate "Neva-Clog" perforated sheet metal and "Mykro-Pore" electro-deposited filter medium.



"Bambino" weaves cloth 244" wide. This is but one of many Multi-Metal looms.

MORE RESEARCH IN PROGRESS

Investigations continue in our own laboratory and in the field on cloth structures, their characteristics, capabilities, flow rates and particle retentivity. These data are available to help you.



Multi-Metal's laboratory carries on research and solves customers problems.

BETTER PROCESS UNIT COMPONENTS

Filter leaves, notably "Rim-Lok," tubular filter elements, strainers, filter-strainer units, screens and other processing components and complete apparatus—Multi-Metal designed and built better than ever—merit your careful study.

Come see us at Booth 191 or write for specific information.



Stainless steel concentric cylinder assembly for refinery

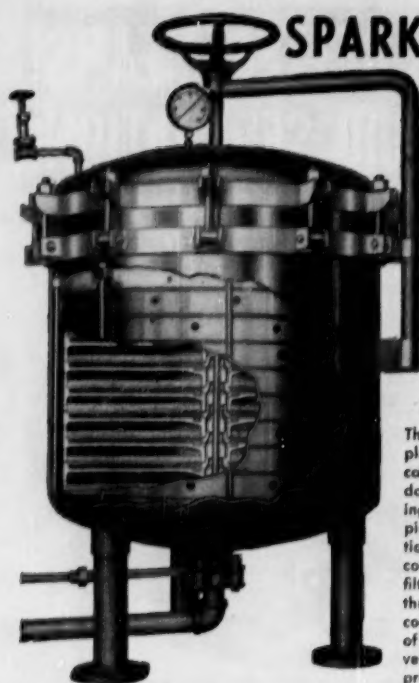


"Rim-Lok," the most efficient leaf for vertical and horizontal leaf filters.

MULTI-METAL WIRE CLOTH CO., INC.
1333 GARRISON AVENUE NEW YORK 59, N. Y.

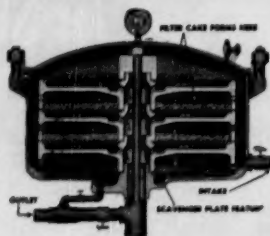
SPARKLER HORIZONTAL PLATE FILTERS

for fine filtering and polishing of liquids



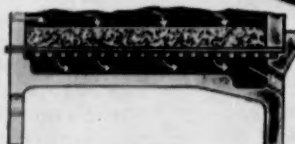
The standard horizontal plate filter . . . with positive cake stability and other operating features unmatched by any other filter.

The Sparkler horizontal plate provides positive cake stability with no danger of cake cracking, slipping, or dropping even with a variation in pressure or a complete shut down of filtering. No break through is possible. Pre-coating is uniform and of even thickness. A very thin pre-coat is practical when desired.



Cross section of horizontal plate filter showing cake resting on plates without tensile strain. No danger of slipping, cracking, or passing of filter aid. Filter aid is floated into position for an even pre-coat and built-up cake.

The three parts of a horizontal plate assembly can be easily taken apart for thorough cleaning, making possible complete sanitation in filtering food products.



Free drainage is a feature of horizontal plate construction. Flow friction is greatly reduced to promote high flow rates.

FOR FILTERING CHEMICALS

Sparkler Filters are available in a wide range of sizes and constructed of a variety of metals to meet practically every requirement in the Chemical and Pharmaceutical industry. Tanks and wettable parts can be supplied in stainless steel, mild steel, bronze, nickel, Monel, Hastelloy or plastic; steam or brine jacketed in capacities up to 10,000 G.P.H. Filter plates are available in two depths, deep plates for liquids carrying a large percentage of solids; shallow plates for liquids carrying a small percentage of solids; the latter providing a larger filtering area in the same size tank.

Sparkler Filters are particularly suited for fine filtration and polishing operations. They are equally efficient for continuous or intermittent operation. Complete recovery of product is obtained by "wash through" or "blowdown" of cake without removal from filter. The Sparkler patented scavenger plate acts as an auxiliary filter with independent control valve, filtering each batch down to almost the "last drop" leaving practically no unfiltered hold over in the bottom of the tank.

Any kind of filter media, screens, or cloths, and all grades of filter paper, together with all types of filter aid such as diatomaceous earth, activated carbon, fullers earth, etc., can be used in a Sparkler filter with maximum efficiency. Filter aids are built up in an even cake and a very thin pre-coat is possible with attendant economies in time and material on a Sparkler horizontal plate.

Perhaps more Sparkler Horizontal Plate Filters are used today in chemical and pharmaceutical processing than any other single type of filter.

FOOD PROCESSING FILTERS—The positive sanitation feature of horizontal plates and tanks is one important reason why Sparkler filters are popular in food processing plants.

LARD AND VEGETABLE OILS are handled to good advantage in Sparkler Filters and a better finished product produced because the first run through the filter is not contaminated by rancid oils and soap particles retained in laundered filter cloths as used in some other methods of filtering.

SUGAR FILTRATION—This filter is particularly efficient for in-line filtration of centrifugal wash water, liquid sugar and other polishing operations where filter aid is applicable. For heavy duty sugar filtration see Model RSC on opposite page.

INFORMATION YOU SHOULD FURNISH OUR ENGINEERS

Nature of fluid—Inert, volatile, inflammable? Give pH, if available.

Physical conditions—Temperature at filtering point? Viscosity at filtering temperature, in SSU or equivalent, or give SAE rating.

Flow and pressure—Is filter to be stationary or portable? Batch-wise or continuous flow? For installation in pressure line or to be equipped with pump? Desired flow rate in gallons per hour or per minute. If in-line installation, give maximum flow rate, maximum allowable working pressure and minimum.

Nature of solids—Hard, abrasive, sticky, fibrous, flocculent, colloidal? Percentage of solids?

Operating conditions—Length of cycle (time between cleanings) desired? If filter is to have pump and motor, should motor be standard, splash-proof, or explosion proof? Give voltage, phase, cycle of current available for motor.

You are invited to place your filtering problem in the hands of our filtration engineers. They have developed many successful methods of filtering difficult materials and may be able to prescribe a solution to your problem without wasteful experimentation.

Specifications . . . Horizontal Plate Filters

Model No.	Capacity GPH	Area Sq. Ft.	Cake Sp. Cu. Ft.	DIMENSIONS			Ship. Wt. Lbs. (Approx.)
				OVERALL	Height	Length	
8-3	30-60	1.0	.073	16"	10"	24"	120-150
8-6	100	2.0	.15	17"	15"	27"	125-140
14-D-4	200	3.2	.48	40"	Circle 29" in diameter		275-400
14-S-7	400	5.6	.38	40"			325-450
18-D-4	400	6.2	.9	45"			585-735
18-S-7	550	10.8	.67	45"			595-745
18-D-6	500	9.2	1.35	49"			625-775
18-S-11	750	17.0	1.16	49"			625-825
18-D-8	650	12.3	1.8	53"			665-865
18-S-15	1200	23.0	1.44	53"			685-885
18-D-12	100	18.5	2.7	61"			745-945
18-S-23	1800	35.4	2.17	61"			775-975
33-D-7	2000	37.8	6.3	69"	44" x 66"		1505-2205
33-S-11	3000	60.0	4.9	69"	44" x 66"		1500-2200
33-D-9	2600	48.6	8.0	74"	44" x 66"		1635-2335
33-S-14	3600	75.5	6.3	74"	44" x 66"		1650-2350
33-D-12	3500	64.8	10.8	81"	44" x 66"		1835-2535
33-S-19	6000	100.0	8.5	81"	44" x 66"		1900-2600
33-D-17	5000	91.8	15.3	96"	44" x 66"		2155-2855
33-S-28	8500	151.2	12.6	96"	44" x 66"		2350-3050

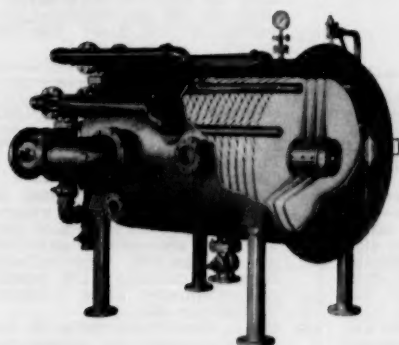
Rubber-lined tank, molded composition plates and rubber-lined piping available in certain 18 and 33 inch sizes. Specifications on request. No scavenger plate in rubber-lined construction. All standard models available in carbon steel, stainless steel, pure nickel or monel, bronze, Hastelloy, and Inconel.

SPARKLER MANUFACTURING CO. • MUNDELEIN, ILL.

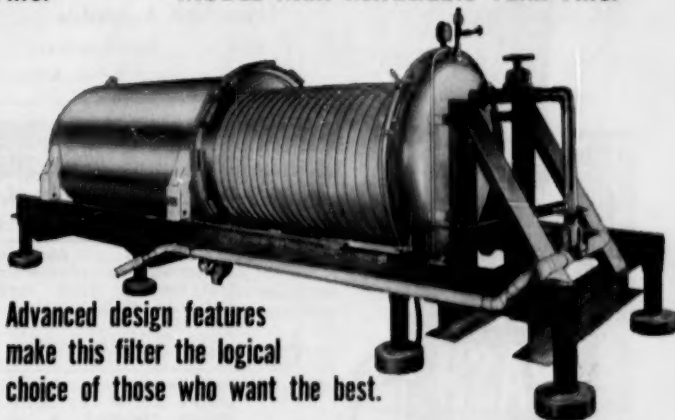
SPARKLER VERTICAL PLATE FILTERS

Heavy Duty Large Capacity

MODEL SCJ Heavy Duty Water Filter



MODEL MCR Retractable Tank Filter



**Advanced design features
make this filter the logical
choice of those who want the best.**

Available in capacities up to 5,000,000 gallons per 24 hr. operation.

The Sparkler SCJ filter introduces a new phase in large volume filtration of water. Now it is possible to employ the high quality, fine filtration characteristics of a diatomite filter for large volume plant water supply, municipal water works, and swimming pools. Clean pure water can be obtained in any required volume from sources such as lakes, rivers, and wells. The SCJ diatomite filter will remove all suspended matter either colloidal or solid, such as silica sand, algae, organic material, silt, etc. Bacteria is reduced 80% to 100% depending on the type of bacteria and the grade of diatomite used as a filter aid. Thus reducing the required chlorination.

Single units capable of handling 5,000,000 gallons of water per day are available. Multiple units can be engineered into a system for larger requirements.

Less than 0.2% of water is required to backwash and clean the largest filter units, a complete fresh pre-coat applied and the filter ready to resume service in 15 minutes.

Operation is simple, no highly skilled specialized personnel is required to insure efficient performance.

Many SCJ filter installations are now operating in industrial plants and in municipal water supply systems with complete satisfaction.

This filter will accommodate products which have a heavy residue. Plates can be spaced at any distance apart to allow for a cake thickness p to 3" or more. Cake can be reduced to a semi-dry condition with blow down and removed by hand scrapping or in some cases merely tapping the edge of the plate. This solves the sewer disposal problem with a heavy cake which frequently amounts to a ton in a 1000 sq. ft. filter. Built-in cake flush off spray tubes can be furnished when desired.

The filter wetting parts can be supplied in mild steel, stainless steel, Hastelloy or other metals.

One man can open this filter in a matter of seconds with the finger tip automatic control power opening mechanism. No disconnecting of piping is necessary, and the filter seal of the plates is not broken in opening. The self-sealing cover is released by a single lever movement. No head room is required above filter to open and clean.

Heavy products such as Tall Oil, and like oils, primary beer filtration, etc., are filtered very successfully in the MCR retractable tank filter.

Model SCJ Filter Capacities

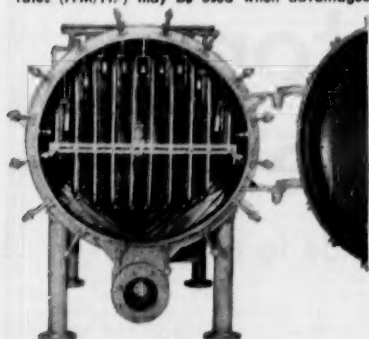
Model No.	Filter Area Sq. Ft.	Pipe Conn. Inches	Approx. Floor Area (Feet)	GALLONS PER DAY*	
				1 GPM/FL ²	2 GPM/FL ²
Model SCJ 24-5	25	3	5x2	36,000	72,000
Model SCJ 24-9	50	3 or 4	5x3	72,000	144,000
Model SCJ 24-13	75	3 or 4	5½x3	108,000	216,000
Model SCJ 32-9	100	4 or 6	6½x3	144,000	288,000
Model SCJ 33-13	150	6	7½x3	216,000	432,000
Model SCJ 33-18	200	6	8½x3	288,000	576,000
Model SCJ 40-16	250	6 or 8	8½x6	360,000	720,000
Model SCJ 40-19	300	6 or 8	9x6	432,000	864,000
Model SCJ 40-22	350	6 or 8	9x6	504,000	1,008,000
Model SCJ 40-25	400	6 or 8	9x6	576,000	1,152,000

Larger capacities up to 2000 sq. ft. can be engineered. (*) Lower or higher flow rates (FPM/FL²) may be used when advantageous to the problem involved.

Model MCR Filter Capacities

Model No.	Sq. Ft. Per Plt.	Sq. Ft. Per Filter	C to C of Plates	Cu. Ft.* of Cake
MCR-64-24	42	1008	4	84
MCR-64-18	42	756	4	71.3
MCR-46-23	22	506	3½	42.1
MCR-46-19	22	418	3½	34.8
MCR-46-16	22	352	3½	29.3
MCR-46-14	22	308	3½	25.6
MCR-46-11	22	242	3½	20.1
MCR-34-17	12	204	3¼	17
MCR-34-13	12	156	3¼	13
MCR-34-11	12	132	3¼	11
MCR-28-13	8	104	3	8.6
MCR-14-6	1.8	10.8	3¼	.9

*Cubic feet of cake based on 1" thick cake.



Model RSC, a self-cleaning filter with pressure spray plate-cleaning and screw conveyor discharge of spent cake.

MODEL RSC Filter

1 Vertical rectangular plates with interior construction that insures an even pre-coat and flow path through plate.

2 Individual plate valved outlets can be supplied. Any plate or plates can be shut off without interrupting filtering operation.

3 Plates are cleaned with individually controlled pressure sprays.

4 Trough bottom with screw conveyor discharges spent cake without opening filter. Heavy sludge can be piped away for disposal through piping attached to trough outlet. This is particularly important when toxic material is being filtered. These automatic cleaning features greatly reduce the labor usually required and cuts operating cost materially.

5 Discharge trough can be supplied with either a bolted cover or quick opening cover. Tank opening can be furnished with a quick opening cover that opens in seconds, ASME approved, at additional cost in place of the regular bolted cover.

6 This filter can be installed in low headroom spaces. The filter can be insulated to minimize heat loss when required, or can be steam jacketed.

Plates can be removed individually and replaced easily with pull-out roller carriage slides. No bolts or fastenings are necessary to hold plates in place. The O-ring gasket on the plate outlet seals into a flange tube opening to form a tight connection.

Model RSC Filter Capacities

Model No. RSC	C. of C. of plates	Square feet in Filter	Cubic feet of cake	Inlet and Outlet size
96	2½	96	6	2
300	4½	300	25	3
560	5	560	46.6	4
1020	5	1020	85	6

The cubic feet of cake is based on 1" thick, except in the RSC-96, where it is based on ¾" thick cake.

Sparkler International, Ltd.

Plants in Holland, Canada, Italy, Australia

For profitable
processing



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New Filters & Dust Collectors

Literature Available . . .

Dust Collectors—
Dust Collectors & Fans

Dust Collectors. Efficiency of Type W Roto-Clone dust collector results from unique design, which combines scrubbing action of liquid sprays and principle of dynamic precipitation. Bul. 274.
264A American Air Filter Co.

Dust Collectors. AMERjet offers higher efficiency, lower service cost and smaller space requirements. For jobs with complete dry dust recovery and collection of the finest particles. Bulletin 279.
264B American Air Filter Co.

Dust Collectors. Describes company's line of dry centrifugal collectors designed to handle large exhaust volumes containing dry, granular dust in large concentrations. Bulletin No. 291.
264C American Air Filter Co.

Dust Collectors. Field-proven Ducon Cyclones provide the filtration to capture nuisance dusts and recover usable product with no processing down-time for sludge clearance. Bul. DC-49.
264D Ducon Co.

Dust Collectors. Ducon centrifugal wash collector, Type UW-4, is a basic air scrubber with many applications for the wet principle collection of extremely fine dusts. Descriptive Bul. W-7456.
264E Ducon Co.

Dust Collectors. Separating efficiencies up to 98.9% on foundry shakeout dust possible, practical and continuous with Hydro-Filter. Turbulent area assures positive dust collection. Bul. 55.
264F Dust Collector Corp.

Dust Collectors. Features of the Air Tumbler are: simple-dependable; no fire hazard; high efficiency; constant capacity; low operating cost. Company gives information in Bulletin 551.
264G Dust Suppression & Engrg.

Dust Collectors. New improved Dustex Collector with all-new tube design assures peak efficiency self-cleaning action, greater capacity, less air flow resistance, etc. Request literature.
264H Dustex Corp.

Dust Collectors. Dustex Collectors are used in the food and chemical industries for the dry collection of fines without filter media. Full details in Determination Test booklet.
264I Dustex Corp.

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PRODUCTS and SERVICES

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1957 INVENTORY

Dust Collectors......New, wet-type dust collector with an efficiency rating of over 99% down to 5 microns. Small, compact, fits where no other dust collector can. Low operating cost. Bulletin JB-616. 265A Joy Mfg. Co.

Dust Collectors.....Maximum filtering efficiency, bag cleaned uniformly and automatically, overcleaning eliminated to prolong bag life, easy to assemble in less space. For details, Aeroturn Booklet. 265B Koppers Co.

Dust Collectors......Self-cleaning collector offers continuous automatic operation, constant air volume and suction, uniform air flow resistance at low cost. For details, Bulletin No. 915. 265C Pangborn Corp.

Dust Collectors......Ventrijet for wet collection of industrial dusts is illustrated and described in 8 p. brochure. Dimensions, weights and capacities are presented in 3 tables. See Bulletin 920. 265D Pangborn Corp.

Dust Collectors......Pangborn collectors trap dust at the source, clean so thoroughly that in the winter many firms cut heating costs by recirculating the already-heated, cleaned air. Bulletin 922. 265E Pangborn Corp.

Dust Collectors......With Pangborn dust collectors employees can work without respirators and protective clothing which would otherwise be necessary. Request a copy of "Out of the Realm of Dust." 265F Pangborn Corp.

Dust Collectors......Dust Control for Industry encompasses in 16 pages the complete range of dust control equipment and accessories. Discusses importance of control, standards and efficiency. 265G Pangborn Corp.

Dust Collectors......Cyclo-trell operates on centrifugal collection principles and incorporates features to boost collection efficiency and gas handling capacity. "Cyclo-trell Multiple Tube Dust Collector." 265H Research-Cottrell.

Dust Collectors......In almost every type of industry... users have found high efficiency, simplicity & economy of Dustube collectors a difficult combination to equal for top performance. Bulletin No. 372C. 265I Wheelabrator Corp.

Dust Collectors......Bulletin treats super cleaning ordinary atmospheric air by adapted industrial cloth-filter-type dust collectors. Good for ventilation of laboratories. Bulletin 557-D. 265J Wheelabrator Corp.

Dust Collectors, Electric Precipitation.....Design features which increase efficiency include large, clog-proof diameter, proper proportioning for maximum dust separation, extra-heavy gauge. Data. 265K Buell Engineering Co.

Dust Collectors & Fans......Company offers complete engineering data on their line of completely integrated shop-assembled dust collectors and their industrial exhaust fans. Research facilities. 265L Fly Ash Arrestor Corp.

NUGENT PRODUCTS

FOR THE

Chemical Industry

BAG-TYPE FILTERS

These Nugent bag-type filters are ideally suited for filtering amine solutions such as Monoethanolamine, Diethanolamine, and Diethylene Glycol. Also adaptable for other corrosive substances. All metal parts of the filter cartridge are stainless steel, providing excellent corrosion resistance. Will remove foreign solids as small as .0007" while filtering all the fluid in circulation every cycle. Available in single or duplex models in a wide range of sizes.



Fig. 1116HA-4L

STAR-SHAPED EXTENDED AREA STRAINERS

Nugent star-shaped extended area strainers are offered with brass, steel or stainless steel screens for corrosive service. Available in single and duplex models with wide capacity range.

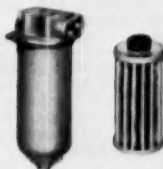


Fig. 1490W-4R, 4S and 4L are high pressure strainers rated for 600 psi working pressure. Use Fig. 1490CN baskets of corresponding size. Capacities: 65-468 GPM. 100 mesh or coarser.

Strainer Fig. 1490AM-O uses Fig. 1490AW-O basket. Rated for 50 psi working pressure. Capacities: 12-25 GPM. 100 mesh or coarser.

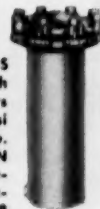
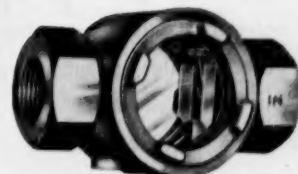


Fig. 1490DD-4L strainer uses one 1490CN-4L basket. Sizes 4R and 4S are same style. Larger sizes available. 125 psi working pressure. Capacities: 65-7500 GPM. 100 mesh or coarser.

SIGHT FLOW INDICATORS

Fig. 1366E fittings are for indicating the flow of liquid in a pipe line. Has spring compensated, hinged, indicator gate which moves in proportion to the flow and is visible from either side, even when liquid is dark or discolored. Windows easily removed for cleaning. May be supplied with electrical contacts to operate an alarm bell or light if liquid flow should stop. Available in brass, cast iron, steel or stainless steel.



For complete information send outline of your requirements.



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New Filters & Dust Collectors

Literature Available

Dust Control—
Filter Paper

Dust Control.....Analyses of how dust control equipment solves the problem of recovering valuable dusts—or controlling harmful dusts. Catalog covers technical information. Request No. 800.
266A Dracco Corp.

Dust Control.....Sly flat bag dust filters get all the dust. Pioneers and leaders in industrial dust control, they have a complete range of equipment for all process operations. Dynaclone Booklet.
266B W. W. Sly Mfg. Co.

Dust Control.....A 4-page report on “How to Control Dust and Save Money in the Manufacture of Building Materials” contains case histories on ready-mix concrete, and roofing products.
266C Wheelabrator Corp.

Dust Controllers.....Complete, low cost unit combines high efficiency of Day Dual-Clone and Exhauster. Ideal for remote locations. Company offers details in Bulletin 510. Request your copy.
266D Day Co.

Dust Controllers.....This complete, low cost unit combines the high efficiency of company's Dual-Clone and Exhauster. Day Company offers Bulletin 510, containing complete information.
125f *Day Co.

Dust Filters.....28 p. book explains in detail the distinguishing features of reverse jet filters. Contains schematic operating diagrams, performance curves for various types of dust. Request Bulletin 559.
266E Day Co.

Dust Filters.....“Type RJ” dust filter is an economical, high efficiency, automatic-continuous dust filter which can be furnished for pressure or vacuum operation. Full details available in Bulletin 560.
266F Day Co.

Dust Filters.....Sly dust filters offer advantages in greater filtering capacity, space-saving installation, automatic control, easier bag replacement. Full details in Bulletins 98 and 102.
266G W. W. Sly Mfg. Co.

Dust Filters.....Type “RJ” dust filter is a highly efficient, combination cyclone and filter. Complete information is available to you in company's free Bulletin 560 sent on request.
125b *Day Co.

Dust Filters.....Day pneumatic bag handling system carries empty bags to a bag trap, and cleans air in a type AC dust filter. Complete information is offered in Bulletin 559 on request.
125a *Day Co.

Dust Separators.....Exclusive Day design provides high efficiency with low horsepower requirements. For complete details on Dual-Clone dust separator, company makes available Bulletin 49DC.
266H Day Co.

Dust Separators.....Dual-Clone dust separators have an exclusive design which gives them high efficiency at low resistance. Write now and you will receive Bulletin 573 with full data.
125e *Day Co.

Dust Separators.....“HV” dust separator is a heavy gauge, welded, highly efficient centrifugal dust separator. Write for a copy of company's free, informative Bulletin 576 now.
125e *Day Co.

Dust Separator, Centrifugal.....12 p. Bulletin 576 discusses design improvements and applications of heavy duty cyclonic dust separator. Air flow resistance and dust recovery curves included.
266I Day Co.

Filter Aids.....For clearest filtration, use Solka-Floc filter aid. 99.5% chemically pure cellulose, Solka-Floc comes in a wide range of grades to meet your needs. Literature and samples.
266J Brown Co.

Filter, Air.....Line of Roll-O-Vent air filters is described in Bulletin 780. Glass-fiber filter media fed and recovered by spools operates automatically to allow once-a-year maintenance.
266K American Air Filter Co.

Filter Cloth, Metallic.....Newark metallic filter cloth is available in a variety of weaves in all malleable metals, and is adaptable to practically all types of filters. Request further data in Catalog “E.”
266L Newark Wire Cloth Co.

Filter Fabrics.....The right fabric adds efficiency to continuous operation. Announces availability of a fully illustrated booklet, “Filter Fabric Facts,” describing filter fabric development and application.
266M Wellington Sears.

Filter Leaf.....“RIM-LOK” Filter Leaf provides simple closure of metal filter cloth in leaf frame without rivets, bolts or solder. Made of any commercial alloy. Details in Bulletin No. 571.
266N Multi-Metal Wire Cloth Co.

Filter Materials.....Company offers information on Wool Felt-Liquid Filtration. Includes characteristics, properties, performance data, of wool felt, & filtration methods. Sheet 17.
266O American Felt Co.

Filter Installations, Automatic.....All Industrial filters are adaptable to complete automation. Company offers reprint of article, “Automation” about a completely automatic filter installation.
266P Industrial Filter & Pump.

Filter Paper.....E&D filter paper as a cover may be indicated if your filter medium is blinding or clogging. Will recommend proper grade for use and send samples for testing. “Filtration Analysis Report.”
266Q Eaton-Dickinson Co.

Filter Paper.....Brochure enumerates dozens of commercial products and processes and tells you the specific grades of E&D filter paper that are most widely used. Information available.
266R Eaton-Dikeman Co.

* From advertisement, this issue



Fulflo Filters

provide Continuous Micronic Clarity

Fulflo Filters give you the exact degree of continuous micronic clarity you need for almost any liquid, any flow rate, any pressure.

Liquids and Gases: Fulflo Filters provide low-cost clarification of liquid chemicals; petro-chemicals; pharmaceuticals; water; compressed air; carbon dioxide and other gases; liquid fuels; oils; commercial fluids.

High or Low Flow Rates, Pressures: Standard models are designed for all normal operating conditions. Special filters are engineered for flow rates up to 2000 gpm or pressures as high as 5000 psi, with minimum pressure drop. Fulflo Filters also meet your exact requirements for high or low viscosity, pH or temperature.

Wide Choice of Filter Elements: Exclusive Honeycomb Filter Tubes, offered in an extensive range of positively controlled densities, are manufactured in cotton; nylon; orlon; dacron, dynel; acetate; glass fibres.

Variety of Containers: Single-tube or multi-tube containers are available in iron, steel, stainless steel, rubber-lined steel or nickel-plated brass. Containers can be built to ASME or other code specifications.

Engineered to Your Needs: Whatever your operating conditions, Fulflo Filters are engineered to your exact requirements.

For technical literature, write Department CE.



Filters Employ Interchangeable Cartridges

CFC Oil Filters (including Honan-Crane models) employ a variety of filter media for removal of soluble as well as solid impurities. Multi-Cartridge Filter (illustrated) provides a choice of six types of interchangeable cartridges for selective filtration of virtually any oil under all operating conditions. Multi-Cartridge Filters are available in ten sizes using one to twenty-four Cartridges. They are suitable for individual machines, central systems or batch filtration. CFC Bulk Refill model operates on by-pass or continuous recirculation basis.

Micro-Fine Filtration for Low Cost Clarity

COMMERCIAL FILTERS CORPORATION

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Plants in Melrose, Massachusetts and Lebanon, Indiana



FULFLO FILTERS WITH GENUINE HONEYCOMB FILTER TUBES FOR CONTROLLED MICRONIC CLARITY • CFC MULTI-CARTRIDGE OIL FILTERS
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AUTOMATIC TUBULAR CONVEYORS • COOLANT CLARIFIERS

VISIT US AT THE EXPOSITION OF CHEMICAL INDUSTRIES—BOOTH 223

NATIONAL HYDRO-FILTER

stops dust here!

Unique turbulent area assures
positive dust collection
at constant efficiency ...
to the micron range

Here is the "heart" of the Hydro-Filter principle of dust separation. This violently turbulent area of water, bubbles and mist is produced by the countercurrent action of air against water. Constant long contact between the air being cleaned and the water which is doing the cleaning produces a scrubbing action which is positive, thorough and unaffected by variation in volume and velocity of flow. Dust is entrained by any, or all, of three means: (1) Entrapment within falling water droplets; (2) Impingement on bubble surfaces; (3) Impingement on wetted surface of glass spheres.

As the photo indicates, the entire collection area is continually flushed. There are no dead areas to corrode or erode. No moving parts to "load up" and reduce efficiency. Maintenance is a matter of minutes a month. Collection of dust to micron size is continuous and sludge removal automatic with the National Hydro-Filter.

Write for . . .

See why and how separating efficiencies of up to 98.9% on foundry shakeout dust are possible practical—and continuous with Hydro-Filter!



Bulletin 55

NATIONAL

Dust Collector Corp.

608 Machinery Hall Bldg., Chicago 6, Illinois

Subsidiary of National Engineering Company,
Manufacturer of Simpson Mix-Mullers.

New Filters & Dust Collectors

Literature Available

Filter Paper, Industrial—
Filter Dehydrator

Filter Paper, Industrial. . . . Unique 24-page Catalog 357 reviews filtration practice, explains how paper filter media help solve laboratory and process problems, helps you select correct grade for job.
268A Eaton-Dikeman Co.

Filter Sheets. . . . Complete range of stainless steel plate & frame sheet filters. Ideal for products ranging from ultra fine pyrogen solutions to coarse prefiltered bulk chemicals. Catalog.
268B Ertel Engrg. Corp.

Filter, Sweetland Pressure. . . . Revised, 4-page Bulletin 7400 tells you about the design, materials of construction, operation and advantages of the Sweetland pressure filter for batch operation.
268C Dorr-Oliver.

Filter, Vertical Pressure. . . . Publication 6321 furnishes details of operation, available sizes and filtering capacity for the Standard type C vertical pressure filter for water clarification.
268D Cochrane Corp.

Filters. . . . National Hydro-Filter stops dust. See why & how separating efficiencies of up to 98.9% are possible, practical and continuous. Write for Bulletin 55.
268 National Dust Collector.

Filters. . . . Niagara filters flow rates 2-to-5 times greater than with plate-and-frame presses. Write for new 12-pg. catalog on service, analysis, rental service & installation.
115 Niagara Filters.

Filters. . . . Adams claims that its line of filters will solve any problem calling for safe filtration of corrosive or high temperature liquids. Rubber- or lead-lined. Request Bulletin 431.
268E R. P. Adams Co.

Filters. . . . Special bulletin describes LPD oil bath filter; listing sizes, capacities and pressure drops; explaining selection of correct filter size; and detailing simple servicing procedure.
268F Air-Maze Corp.

Filters. . . . Alsop filters, mixers and tanks are available in a complete range of sizes and capacities and Alsop equipment is custom fitted to your application. Company offers catalog.
268G Alsop Engineering Corp.

Filters. . . . Company supplies filters to give you the exact degree of continuous micron clarity you need—filter elements and containers available in many different materials. Literature.
268H Commercial Filters Corp.

Filters. . . . Fulflo Filters for microscopic clarification of industrial liquids and various gases with honeycomb filter tubes. Tubes available in nylon, orlon, dynel, acetate, glass. Catalog PM-200A.
268I Commercial Filters Corp.

Filters. . . . Cuno offers a line of filters including Micro-Klean . . . double life replaceable cartridges; higher flow rates in less space; consistent, uniform filtration. Details in Bulletins.
268J Cuno Engrg. Corp.

Filters. . . . Bulletin describes Flo-Klean filters for raw water, light process liquids, and centralized coolant systems. Continuously and automatically self cleaning. Request Bulletin 052.
268K Cuno Engrg. Corp.

Filters. . . . 5-micron filter provides 50% longer service life, polishes, purifies liquids to sparkling clarity, handles highly alkaline fluids. Company makes complete details available.
268L Cuno Engrg. Corp.

Filters. . . . Bulletin describes characteristics, construction, sizes, operation and advantages of widely applied cane sugar filter. Designed for high efficiency cane mud washing. Bulletin 4093.
268M Dorr-Oliver.

Filters. . . . Company offers Bulletin 111 on vertical filters, Bulletin NH-122 on horizontal filters, Bulletin TS-160 on tubular filters, Bulletin 114 on Hydra-Shoc filters. Also "Automation" reprint.
268N Industrial Filter & Pump.

Filters, Air. . . . Roll-o-matic filter curtains automatically roll up dust laden media and unroll clean media in proper amount. A single roll represents a full year's supply of clean air. Bul. 248.
268O American Air Filter Co.

Filters, Air. . . . Model F electronic precipitator delivers uniformly clean air around the clock, with continuous self-cleaning. Bulletin 250 gives complete product information on this air filter.
268P American Air Filter Co.

Filters, Air. . . . Type N Roto-Clone, a hydrostatic precipitator, collects heavy dust loadings of all particle sizes with highest efficiency and lowest maintenance costs. Request Bulletin 277.
268Q American Air Filter Co.

Filters, Air. . . . Multiple-Media Multi-Pak air filter was specially designed to offer higher air cleaning efficiency, higher dust-holding capacity in a mechanical filter. Request your copy of Bulletin 237.
268R American Air Filter Co.

Filters, Air. . . . According to Bulletin 120, Aerosolve filters now have interchangeable cartridges to permit changing to high or lower efficiencies to meet changing conditions and control cost.
268S Cambridge Filter Corp.

Filters, Air. . . . Dry type air filters for automotive and industrial applications. Booklet will guide you in making selection for your specific problem. For information, Catalog AFC-56.
268T Purolator Products.

Filters, Air, Electronic. . . . Bulletin tells how electronic air filters cut office building maintenance costs \$18,000 a year. "The New England Life Electro-Matic Story" gives details. Bulletin 250-A-1.
268U American Air Filter Co.

* From advertisement, this issue

1957 INVENTORY

Filters, Automatic..... Filtration of raw water with an Adams AWF Automatic Filter can eliminate need for a pretreatment settling basin. Company makes details available in Bulletin 909.
269A R. P. Adams Co.

Filters, Automatic..... Versatile automatic filters provide double filter curtains, automatic control, rugged construction, protection of all moving parts, highest efficiency. Request Bulletin 500.
269B Dollinger Corp.

Filters, Batch..... Illustrated bulletins describing Model HB and Model H Filters with Batch Recovery Leaf Feature are available. No waste, no need for storage; handle unfiltered residue.
269C Process Filters Inc.

Filters & Bottle Filters..... Company manufactures portable filters for small capacity requirements, portable vacuum bottle filters for the perfumer and asbestos filter sheets. Illustrated Cat.
126 *Ertel Eng. Corp.

Filters, Ceramic..... Specifications, illustrations, installation and operating data for ceramic vacuum filters in four different materials of construction are included in 4-page bulletin.
269D General Ceramics Corp.

Filters, Condenser..... Bulletin covers construction, operation and specifications of Hankison's Condensifilters. Efficient in operation, rugged in construction and easy to service. Bulletin M-7155(R).
269E Hankison Corp.

Filters, Dehydrator..... Dehydrifilters are designed for single, isolated installations of pneumatic instruments and controls requiring small volumes of compressed air. Details in Bulletin 302.
269F Hankison Corp.

14 Months

Literature listings in this Inventory Issue cover the period of August 1956-September 1957. Fourteen issues of Chemical Engineering inventoried for your convenience. Complete your files with manufacturers' data.

This master checklist of available data is easy to use. Simply write the code numbers on one of the postcards inside the back cover. Fill it out and mail. It's easy. And you should have your new bulletins within . . .

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Metallic Filter Cloth

NEWARK
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WIRE CLOTH
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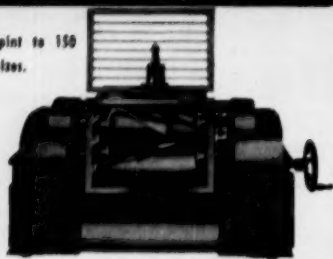
For the most uniform, most accurate metallic filter cloth, specify NEWARK. All weaves, all metals for all types of service, there's a NEWARK filter cloth engineered to meet your requirements. Send for our New Catalog E.

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MIXING AND GRINDING EQUIPMENT
for over 90 years

* 1 pint to 150 gal. sizes.



#41L-10 Gal. Double Arm Kneader with two speed brake motor. Jacketed trough and motor operated lift optional.

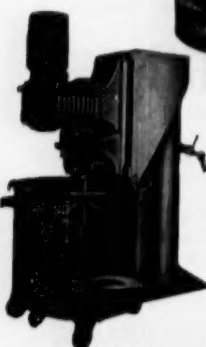


#527C-14" x 32" High Speed Three Roller Mill. Hydraulic adjustment and pressure recording gauges optional.

#30C-50 Gal. Heavy Duty Change Can Mixer. Adjustable outer scraper, cover with charging port, and gates on cans optional.



#130H-250 Gal. Change Tank Mixer with hydraulic raising and lowering and variable speed motor. Various type stirrers and high speed impellers optional.



#130E1-1 Gal. Double Planetary type Change Can Mixer with shearing action stirrers, and variable speed reversing type motor. Jacketed cans and portable trucks for cans optional.

* 1, 2, 3, 4, 6, 15, 25, 50, 65, 85, 110 and 150 gal. sizes.

Write for complete information on these or other

types of  equipment.

**CHARLES ROSS & SON
COMPANY, INC.**

152 CLASSON AVENUE
BROOKLYN 5, NEW YORK

New Filters & Dust Collectors

Literature Available

Filter, Disc—
Filters, Vertical Pressure

Filters, Disc.....Special patented design of segments in filters use both gravity and vacuum to give a drier filter cake. Drainage is complete and positive with no blow-back. Details in Bulletin FG-B1.
270A Denver Equipment Co.

Filters, Disc.....9' diameter filter has 105 sq. ft. in the filter area per disc. There are 12 segments per disc instead of the usual 10, giving greater filter capacity. May-June 1956 Deco Trefoil.
270B Denver Equipment Co.

Filters Disc.....Illustrated Bulletin 7C gives full data on Nugent laminated disc filters, including design features, specifications, applications, accessories and performance comparisons.
270C Wm. W. Nugent & Co.

Filters, Dust.....The Dynaclone self-cleaning, flat-bag filter is the only unit which operates continuously without the need for auxiliary blowers to create reverse cleaning air. Request your free Booklet.
270D W. W. Sly Mfg. Co.

Filters & Filter Tubes.....Fulfilco filters clarify all types of industrial fluids: liquid chemicals, petro-chemicals, pharmaceuticals, water, compressed air, gases, oils. Request Bulletin AD50-1B.
270E Commercial Filters Corp.

Filters, Flow.....Nugent full flow filters will remove foreign solids as small as 2 microns from lube or fuel oil before they can reach and damage vital precision parts. Full details in descriptive literature.
270F Wm. W. Nugent & Co.

Filters, Gas.....Staynew gas filters in natural and manufactured gas pipe lines remove dry oxide and sticky oily deposits, keep out lamp black and moisture. New felted dry-type medium. Bulletin 290-R.
270G Dollinger Corp.

Filters, Gas.....Norwalk gas filter completely removes all fine dust and scale from the gas as it passes through the filter. Reduces service calls and pilot light outages. Complete details in Bulletin 9200.
270H Norwalk Valve Co.

Filters, Horizontal Plate....."Batch-Miser" horizontal plate filter recovers 100% of both liquid and solids—without scavenging. There is no leakage, no warping of plates. Request Bulletin.
270I Niagara Filter Div.

Filters, Horizontal Pressure.....Details in these filters found in Publication 6322 include operation, control, filter-bed materials, design features, accessories and drawings of arrangements.
270J Cochrane Corp.

Filters, Horizontal Pressure.....Filters with many convenience features: quick opening door, shakers for cleaning, equal size leaves. Can be automated for continuous operation. Request Bulletin NH-122.
270K Industrial Filter & Pump.

* From advertisement, this issue

Filters, Industrial.....IWF industrial filter features high flow backwash design; 5 basic sizes; high-polish, diatomite filtration; batch or continuous "on-stream" operation. Bulletin 651.
270L R. P. Adams Co.

Filters, Instrument Air.....Bulletin IAF-856 shows how new instrument-air filters remove fine dirt particles and entrained liquid droplets from compressed air streams. Two types.
270M Air-Maze Corp.

Filters, Intake.....Simple, accessible Dry-Type intake filters protect internal combustion engines, compressors, blowers, motors and generators. No oil reservoirs or oil coatings. Bulletin 100.
270N Dollinger Corp.

Filters, Leaf....."Multi-Matter", informational house organ, contains series of articles on the importance of properly designed filter leaves. Current issue and Catalog #57 are available.
270O Multi-Metal Wire Cloth Co.

Filters, Liquid.....All-metal filters for full flow filtration of lubricating, hydraulic and fuel oils. Of special screen disc construction, sizes are from 1.7 to 720 gpm. capacities. LFC Catalog.
270P Air-Maze Corp.

Filters, Liquid.....Dollinger liquid filters can filter practically any liquid successfully, regardless of temperature, pressure, or efficiency desired. Filter bodies in steel, monel, etc. Bul. 300.
270Q Dollinger Corp.

Filters, Liquid.....Company offers 12 pg. bulletin describing its Staynew filter. Contains engineering & performance data, photos, descriptions of filtering media, recommended use of each, etc. Bulletin 330.
270R Dollinger Corp.

Filters-Mixers-Tanks.....Alsop filters, mixers, and tanks are available in a complete range of sizes and capacities, and the equipment is custom fitted to your application. Details in complete catalog.
270S Alsop Engrg. Corp.

Filters, Nuclear.....Catalog 54-102 covers a complete line of filters and filtration systems for use in nuclear power and research applications. Lists 15 principal types of application for these units.
270T Cuno Engineering Corp.

Filters, Pan.....2 p. leaflet describes the features, operation, advantages and sizes of a new type pan filter. Also includes typical layout diagram, "Dorr-Oliver Traveling Pan Filter", Leaflet No. 8001.
270U Dorr-Oliver.

Filters, Pipe Line.....Small, low pressure pipe line filters for pressures up to 40 psi for gas or compressed air provide two separate cleaning actions, low resistance, reduced weight. Bul. 210.
270V Dollinger Corp.

Filters, Porcelain.....Micro-porous porcelain filters are used for clarification, polishing, cold sterilization of pharmaceuticals, biologicals, and fine chemicals. Send for details in Bulletin SC1051.
270W Selas Corp. of America.

1957 INVENTORY

Filters, Pressure......Illustrated bulletin describes the Dorr-Oliver "Hi-Rate" pressure filter, a new pressure filter specifically designed for high capacity water filtration. Bulletin No. 9200.
271A Dorr-Oliver.

Filters, Pressure......New, 12-page catalog contains data on company's vertical leaf pressure filter for liquid clarification and solids recovery. Design features, models, sizes.
271B Niagara Filters Div.

Filters, Pressure......Horizontal plate, enclosed tank type filter handles any fluid from the lightest, most volatile liquid to heavy slurries or viscous materials. Bulletin 138A.
90 *T. Shriver & Co.

Filters, Pressure Leaf......For flow rates two to five times greater than cloth covered presses; positive removal of all suspended solids to desired degree of clarity; etc. Catalog No. NC-1-53.
271C Niagara Filters Div.

Filter, Small In-Line......In Bulletin 506 you'll find dimensions, specs., and typical systems for higher capacity RL-1 rubber lined and LL-1 lead lined 3½-sq.-ft. filters for corrosive applications.
271D R. P. Adams Co.

Filter, Small In-Line......According to Bulletin 615, the WJR-1-A line of small filters has been redesigned to increase area 75% without increasing floor space requirements. Carbon steel or stainless steel.
271E R. P. Adams Co.

Filters, Tubular......Excellent for polishing, as a trap filter or scavenger. Operation and cleaning is greatly simplified by inside-out flow system. For complete details, request Bulletin TS-160.
271F Industrial Filter & Pump.

Filters, Vacuum......Tilting pan vacuum filters are useful when you have coarse, heavy solids; when your solids tend to blind filter cloths; when you need best wash, minimum wash water. Bulletin.
271G Bird Mach. Co.

Filters, Vacuum, Rotary, Continuous......The Original String Discharge Filter is only one of many types of FEInc continuous rotary vacuum filters available... custom-made at standard costs. Buls.
271H Filtration Engineers.

Filters, Valveless......Bulletin, "The Permutit Valveless Filter," includes details, drawings, operating conditions, capacities. Completely automatic gravity filter. Costs less than manual unit.
271I Permutit Co.

Filters, Vertical......Standard or specially engineered models for any filtration process. Available with various rapid cleaning features and fully automatic controls. Request Bulletins 111 and 114-1155.
271J Industrial Filter & Pump.

Filters, Vertical Pressure......Bulletins provide details on Cochrane vertical pressure filters with positive foolproof filter control, for industrial plants, hospitals, etc. Publications 6319 and 6320.
271K Cochrane Corp.



N.F.M. makes a FULL LINE of Filter Media!



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DYNEL	TEFLON***
NYLON	GLASS
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FILTER MEDIA HEADQUARTERS
BOOTH 1113

We offer you a full line from which to find the answer to your filter cloth problems. These cloths cover a wide range of resistance to heat, resistance to attack by acids, mold, fungi, alkalies and bacteria, retention of fines, etc. And, because we make a number of different cloths, we are in a position to recommend the best cloth to solve your problem. Our policy is to provide you with the best cloth available to do the job.

For test samples, and recommendations based on our many years of experience, write us giving full details of your filter operations.

Remember, too, we have facilities for making up filter element covers from any of the available fibers, sewed with thread of the same resistance properties as the yarn that goes into the cloth.

*TM — Du Pont Polyester Fiber
**TM — Du Pont Acrylic Fiber
***TM — Du Pont Tetrafluorethylene Fiber
†TM — National Filter Media Corporation



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Johannesburg, South Africa: Edward L. Bateman

New Filters & Dust Collectors

1957 INVENTORY

Literature Available

Filters, Water—
Washing Systems

Filters, Water.....Where high quality process water is needed, diatomite filters will provide an effluent second only to distilled water. Bulletin 651 covers this type of industrial water filter. 272A R. P. Adams Co.

Filters, Water.....Booklet "Fulfilo Filters for Water and Aqueous Liquids" contains technical data on each filter model. Wide range of controlled filter densities aids selection for best results. 272B Commercial Filters Corp.

Filters, Water.....12 p. fully illustrated bulletin completely describes uses, design features and engineering details of pressure sand and gravel filters. Details on accessory equipment. Bul. WC-107A. 272C Graver Water Conditioning.

Filtration Equipment.....Sperry makes available a catalog complete with charts, tables, and diagrams to help in the operation, maintenance and selection of filtration equipment. See Filtration Catalog. 272D D. R. Sperry & Co.

* From advertisement, this issue

Filtration Unit.....Removes minute physical impurities from water down to 1/10th micron at the rate of 3 to 10 gal./min. Details, operation and specifications in Technical Bulletin R-142. 272E Helco, Inc.

Filtration Units.....Company introduces stainless steel Durco-Enzinger filtration station as portable package unit. Ideal for pilot plant or other small batch operations. Details upon request. 272F Duriron Co.

Filtration Units, Air.....Rollotron Booklet gives facts about the air filtration unit that eliminates scheduled filter maintenance. Offers ultimate in efficiency—electronically clean air. Bul. 249. 272G American Air Filter Co.

Presses, Filter.....Shriver has a long record in solving problems of filtration, washing, extraction or thickening, with the kind of filter press best suited to specific conditions. See data book. 272H T. Shriver & Co.

Presses, Filter.....Offer numerous features: lowest cost per sq. ft. of filtering area; produces perfect clarity of filtrate; can be used in decolorizing—deodorizing; etc "Guide to Better Filtration." 272I T. Shriver & Co.

Presses, Filter.....Sperry filter presses can speed your production and improve product quality at lower costs, company states. Complete information offered in Sperry Filtration Catalog. 272J D. R. Sperry & Co.

Presses, Filter.....Sperry Catalog complete with charts, tables, and diagrams, will help you in the operation, maintenance and selection of filtration equipment. Request your copy of Catalog 7-E. 272K D. R. Sperry & Co.

Scrubbers, Conical.....Revised Bulletin 37-B describes scrubber. Includes ratings and dimensions and approximate operating capacity. Unit used for treating or beneficiating ore. 272L Hardinge Co.

Scrubbers, Gas.....Installations of this equipment handle gas scrubbing problems. Help stop air pollution and recover valuable materials. World-wide usage. Bulletins M-102 & M-103. 272M Chemical Construction Corp.

Separators, Entrainment.....Knitted wire mesh entrainment separators will remove and return more than 99% of the liquid carryover, can be operated at 10% higher velocities. Request Bulletin ME-6. 409 *Metal Textile Corp.

Washer, Air.....Air washing provides a higher degree of cleaning than simple filtering. It also cools and humidifies. For information on "Buffalo" Air Washers, Bulletin 3142-E. 272N Buffalo Forge Co.

Washers, Air.....Many maintenance-free centrifugal air washers help transform waste into wallboard. Company makes literature on this and other Ducon dust collection equipment. 272Q Ducon Co.

Washers, Air.....Stainless steel air washers custom built to your specifications for: washing, cleaning, humidifying, dehumidifying, heating, and cooling. Company makes details available on request. 272P Mario Coil Co.

Washers, Air.....Compact and sectional in construction, for quick, easy erection. Available in many standard sizes, also custom designed for special applications. Request information. 272Q Mario Coil Co.

Washers, Fume.....Cyclonaire, though only a fraction of the size, offers more fume removal capacity per dollar of cost than any custom-built unit. First "Packaged" fume washer. Bul. FW-4. 272R U. S. Stoneware Co.

Washers, Pulp.....Pulp washers for the neutral sulphite semi-chemical pulping process. Advance design features will reduce pulp washing and evaporation costs. Full details in Bulletin SW-300. 272S Swenson Evaporator Co.

Washing Systems.....12 p. bulletin "Oliver Brownstock Washing System" describes features, operation, components, sizes, adaptations & advantages of brownstock washing system. Bulletin 3303. 272T Dorr-Oliver.

IF YOU Will Tell Us The Product You Are Filtering—Type of Equipment You Operate—Plate and Frame Or Rotary Filter—Whether Acid or Alkaline Solution — Temperatures — Pressure — We WILL MAKE SOME SUGGESTIONS.

OVER 40 different cotton weaves, Including filter twills, chain-cloths and filter flannels.

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Blanket, Electric

Wraps around irregular surfaces to provide heat to 220 F. (273A)

... Quick, even heat is delivered to hard-to-get-at places by Uskon rubber electrical blankets. Using conductive rubber element instead of heating wires, blanket can be bent around corners, stuck into crevices, wrapped

around objects or applied between surfaces and put under pressure. It can be glued to almost any surface and it can be nailed or stapled along the edges.—*U. S. Rubber Co., New York 20, N. Y.*

Coil, Finned

Square finned, furnished with extra-heavy pipe. (273B)

... Cooling coil developed for refrigeration is believed to offer advantages for cooling or precooling gases and liquids. A perfect bond is claimed between the fin and the pipe. While

most coils of this type can only be furnished in full-weight pipe, this square-finned coil can be built with extra-heavy pipe.—*Frick Co., Wayneboro, Pa.*

Cooler, Bleach

Standard line in all sizes and capacities. (273C)

... Camac bleach coolers are available for standard batch or continuous manufacture of sodium hypochlorite bleach. Coolers feature graphite heat transfer tubes and polyvinyl chloride connections. There are no cemented

joints since all fabricating cements normally used for assembling graphite are attacked rapidly by hypochlorite. Units are free of chemical attack after long service.—*Carl Buck & Associates, Essex Falls, N. J.*

Cooler, Kiln

Rotates with kiln, cools fine particles. (273D)

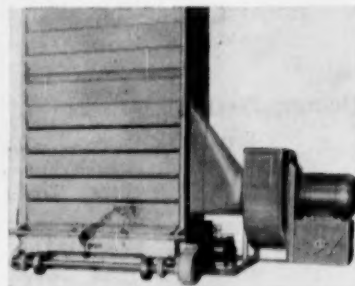
... Tube-type cooler is particularly good for cooling fine and soft materials because there's no tumbling action or violent contact with the air stream to cause dust losses. Cooler consists of a series of tubes attached

along kiln shell at discharge end. Within each tube is a series of spiral baffles which convey material and transfer heat from solids to counter-flowing air.—*Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.*

Cooler, Pellet

Controls flow of pellets and air automatically. (273E)

... Pellet cooler and dryer is simple and effective, operating with minimum of fines or dust leakage. Pellets are spouted into a hopper at the top of the cooler where a deflector splits them into two columns. Pellets flow by gravity on to a shaking shoe and then to the discharge chute. Rate of discharge is adjusted automatically to feed rate. During flow downward, each column of pellets passes through air stream which gently and gradually cools pellets.—*Sprout, Waldron & Co., Inc., Muncy, Pa.*

**Cooler, Rotary-Louvre**

Uses water as cooling medium. (273F)

... Cooler for crystalline or powdered solids has hollow, water-cooled louvers to move and cool the solids. Cooler comes in one, two, or three stages and in a range of diameters and lengths.

Parts that contact product are normally fabricated from mild steel, stainless steel or aluminum.—*Dunford & Elliot Process Engineering Ltd., London S. W. 8, England.*

Cooling Tower, Portable

Completely equipped. (273G)

... Water-cooling tower on wheels is completely equipped with pumps, strainers, electrical control equipment, pressure gages, thermometers and feed water conditioner. Unit cools 240 gpm. of 115 F. water down to

90 F. using 95 F. air with an 80 F. wet bulb temperature. Unit can solve shortage of cooling water for small chemical plants, diesel power stations and air conditioned buildings.—*Badger Mfg. Co., Cambridge, Mass.*

Exchanger, Heat

Extended surface beats transfer rate of finned type. (273H)

... Heat transfer rates 1½ to 5 times greater than conventional finned surfaces of equivalent diameter are claimed for Thermek tubular heat exchanger. It's recommended for oil

heating, oil cooling, water or steam heating, water cooling, vapor condensing, cooling compressed air, cooling by gas expansion in an industrial refrigerant.—*Heatron, Inc., York, Pa.*

FOR MORE INFORMATION on any item in this section, write its code number on one of the Reader Service postcards (inside back cover) and mail. It's fast and easy.

Exchanger, Heat

Has flexibly mounted impervious-graphite tubes. (274A)

... Custom-designed line of acid-resistant heat exchangers has impervious-graphite tubes mounted in tubesheet by means of neoprene ring gaskets. As gaskets are driven into place during installation, they com-

press to form a tight, flexible seal. Construction protects fully against expansion and contraction strains. There are no floating tubesheets to leak or stick.—*Swenson Evaporator Co., Harvey, Ill.*

Exchanger, Heat

Wide range of standard sizes. (274B)

... Exceptionally high performance at low cost is reported for Hi-Transfer line of heat exchangers. Units, assuring maximum heat transfer with

minimum pressure drop, are offered in wide range of standard sizes which fill all ordinary requirements.—*Whitlock Mfg. Co., West Hartford, Conn.*

Exchangers, Heat

Standard line for rapid delivery. (274C)

... Complete standard line of single and double-pass heat exchangers is now available for delivery within two weeks from Pfaudler Co. Flexibility

of line allows you to satisfy most heat exchanger needs without requiring special or complicated designs.—*Pfaudler Co., Rochester, N. Y.*

Heater, Air

Operates more efficiently. (274D)

... Counterflo series air heaters increases heating efficiency by providing more hot air with less fan horsepower. Two-part design—Pyro-Jet induced draft burner, stainless-steel combus-

tion chamber and low-speed, double-inlet fans—permits wide flexibility in matching fan requirements with heater outputs.—*Dravo Corp., Neville Island, Pittsburgh 25, Pa.*

Heater, Drum

Improves conduction of heat. (274E)

... RH-1 Acrawatt drum heater is reported to provide better heating for 55-gal. drums. Unit is designed to heat 22½-in.-dia. drums containing ma-

terials such as plastic resins, molasses, fats, adhesives and non-volatile chemicals.—*Acra Electric Corp., Franklin Park, Ill.*

Heater, Electric

Hermetic seal protects heating element from fumes, moisture. (274F)

... Impervious alumina ceramic-to-metal seal on tubular and tubular-finned electric resistance heaters protects heating element against moisture and fumes. Seal is recommended for

temperatures up to 750 F. in air and 1,000 F. in inert atmospheres. Up to 4,000 psi. liquid pressure can be tolerated.—*General Electric Co., Schenectady 5, N. Y.*

Heater, Radiant

Cuts power usage and processing time. (274G)

... In heating performance, Velotron radiant heater is said to surpass either conventional infrared filament lamps or metallic-sheathed heaters. Users report: Production rate rises 25% in textile-drying operation; unit uses 40% less power than previous

lamps to dry latex and plastic cements in ½ the space; food-processing oven uses 45% less power. Wide-frequency radiation from this infrared heater converts more completely to heat at receiving surface.—*Velotron, Inc., New York 1, N. Y.*

Literature Available

HEATERS & COOLERS

Air Conditioning, Controlled Humidity Method removes moisture from air by contact with a liquid in a small spray chamber. Heating or cooling done as separate function. Details in Bulletins 112 and 121. 274A Niagara Blower Co.

Air Conditioning Equipment Free Bulletins 122, 112, and 133 describe methods of obtaining precise control of temperature and moisture. They are illustrated with diagrams, photographs. 438a *Niagara Blower Co.

Air Handling Equipment Company offers information on line of air handling combination units for general application including ventilating, heating, & air conditioning. Units in 13 sizes. 274I Westinghouse Electric Corp.

Autoclaves Magne Dash Autoclave features: no stuffing box, no external moving parts, positive agitation in both directions, variable agitator speed, electrical heating. Details in Bulletin 1051-B. 274J Autoclave Engineers.

Autoclaves Blaw-Knox autoclaves furnished in a size and type for every pressure and temperature application with all auxiliary equipment for a complete high pressure plant. Catalog 2413-R. 274K Blaw-Knox Co.

Boiler-Burner Units In Bulletin 900 you'll find the line of International boiler-burner units which offer the superior performance features of water-tube boilers plus the advantages of burner selection. 274L International Boiler Works.

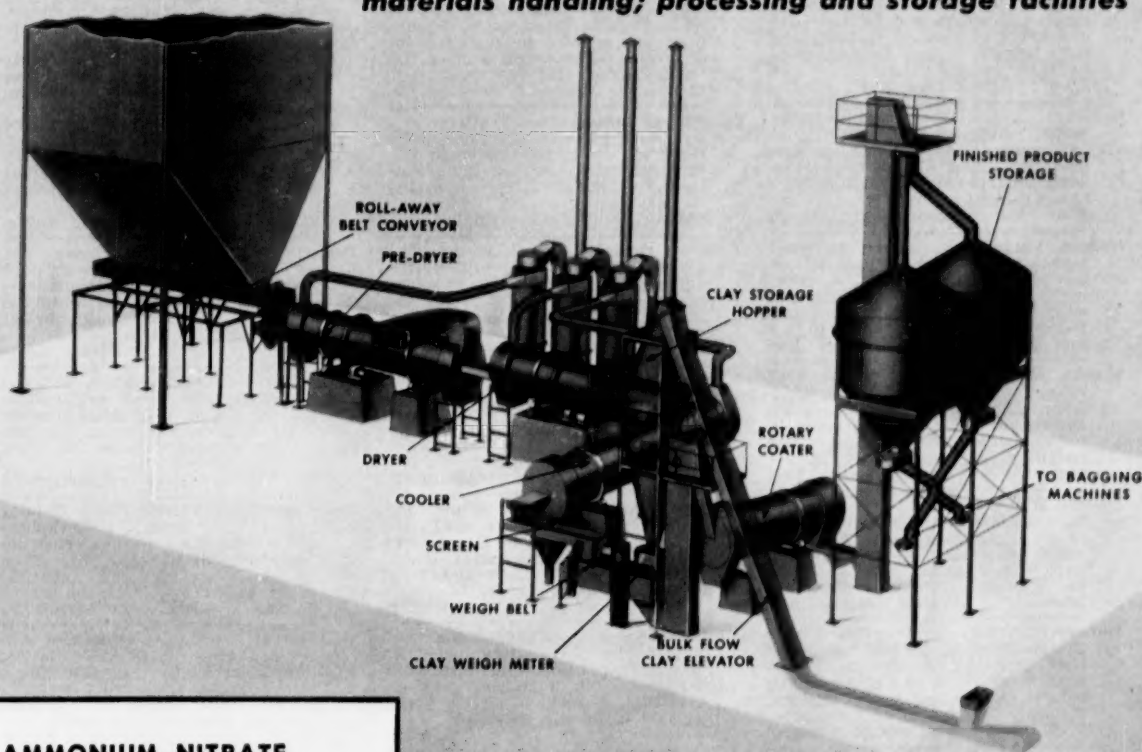
Boiler-Burner Units 3-Pass design achieves 80% plus efficiencies—delivers maximum operating economy. Adapted for standard burners employing gas, oil or combinations. Request descriptive bulletins. 274M Titusville Iron Works Co.

* From advertisement, this issue

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AMMONIUM NITRATE FERTILIZER DRYING AND PROCESSING PLANT

Prills formed by cooling concentrated ammonium nitrate solution (NH_4NO_3) sprayed into the top of a 150 foot prill tower (not shown) are fed out of the bottom of the tower with a belt conveyor (which can be rolled away for cleaning) and passed successively through a rotary pre-dryer and dryer, both of Bartlett-Snow's Style J steam heated design. Prills discharged from the dryer at about 170° F. and .2% to .4% moisture are passed through an air swept rotary cooler that lowers their temperature to 110° F. They are then screened, powdered clay added, and passed through a rotary blender. The finished pellets are elevated to storage preparatory to bagging.

• Bartlett-Snow offers more than 60 years experience in engineering, fabricating and erecting of dryers, coolers, calciners and other continuous and batch heat processing equipment. Our research laboratory in Cleveland provides facilities for determining heat sensitivity, preferred velocities, retention time and other needed physical and chemical reactions of the material . . . can even produce actual samples of the treated product before the full plant equipment is built.

We are well known also as builders of bucket elevators; rotary screens; bins and gates; apron, screw, belt and flight conveyors and other materials handling equipment. Thus we can supply — at no higher first cost — all the equipment needed for an entire system including all accessory facilities, assuring early completion of the project and fully coordinated operation as planned. Let us help you with your next job. *Get full details!*

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New Heaters & Coolers

1957 INVENTORY

Literature Available

Boilers—
Condensers, Vapor

- Boilers**.....6-page brochure AD-162 describes in detail complete line of model CB boilers. Points covered—unusual fuel flexibility, four-pass forced-draft design, unified electric and steam preheater. 276A Cleaver-Brooks Co.
- Boilers**.....“Meet the Titusville Boiler Family” includes a range of Titusville power and heating boilers, providing from 97 to more than 8,000 square feet of heating surface. Bulletin B-3300-A. 276B Struthers Wells Corp.
- Boilers, Packaged**.....Bros packaged boilers fulfill steam requirements in the medium pressure range. Offer high steam generating efficiencies with economy of installation. Bros Packaged Boiler. Cat. WT-10. 276C Wm. Bros. Inc.
- Boilers, Waste Heat**.....Waste heat boilers utilize hot exhaust gases from chemical processes, kilns, Diesels or other engines, converting otherwise wasted energy into usable steam. Bul. WHB-47-4. 147f *Foster Wheeler Corp.
- Boilers, Water Tube**.....Vapor Modulator produces up to 4 hp per sq. ft. of area; develops up to 27 hp per 1000# of weight; up to 6 hp per cubic ft. of space used; complete package unit. Bulletin 586. 276D Vapor Heating Corp.
- Burners**.....Bulletin describes “Fireye System PP-2, Model 1012,” a control that programs & safeguards operating sequence of full-automatic rotary register oil & gas burners. Bulletin CP-32. 276E Electronics Corp. of America.
- Burners**.....Utilization of Thermal burner characteristics of high velocity, high temperature, non-luminous flame obtain remarkable results in furnaces, kilns, ovens and heat exchangers. Bulletin 108. 276F Thermal Research & Engrg.
- Burners, Combination**.....Thermal vortex burner described in Bulletin III features integral construction of burner and combustion chamber. Operates on residual fuel oil and other fuels. 276G Thermal Research & Engrg.
- Burners, Dual Stage**.....Oil burners of the steam and mechanical types now combined into dual stage burners. For description, illustration and specifications, Bulletin 25 is available. 276H National Airoil Burner Co.
- Burners, Gas**.....Radiant tube gas burners feature uniform heat distribution in tubes; flame length control; quieter operation; longer operation with less burner cleaning. Data Sheet 808. 276I Hauck Mfg. Co.
- Burners, Laboratory**.....Booklet contains a complete selection of laboratory gas burners for use on artificial, mixed, natural or bottled gases. Also gives price list. Copies of Bulletin 20 available. 276J Central Scientific Co.
- Burning Equipment, Sulfur**.....Bulletin on sulfur burning equipment for sulfuric acid plants and for producing sulfur dioxide from sulfur for paper mills and other industries. Bulletin S-110. 276K Chemical Construction Corp.
- Cables, Electric Heating**.....Chromalox “Hi-Temp Thermwire” electric heating cable provides a flexible, high temperature heat source for application temperatures up to 275 F. Bulletin L-1138. 276L Edwin L. Wiegand Co.
- Chambers, Temperature Control**.....4 p. folder discusses the Tenney TR Chamber especially designed for accurate controlled low-high temperature and relative humidity testing. 276M Tenney Engineering.
- Chillers, Brine**.....Circular describes low temperature brine chillers designed to produce a constant source of brine to -120° F. for production or test applications. Request your copy. 276N Murphy & Miller.
- Chillers, Scraped Surface**.....Adaptable to any process characterized by: heat transfer with crystallization, heat transfer with solvent extraction, heat transfer with high viscosity. Bulletin PE-2. 276O Henry Vogt Machine Co.
- Chillers, Water**.....Features and components of Airtemp’s recently introduced series of centrifugal water chillers are discussed in a folder, Form No. AC-285. Sizes range from 150 to 500 tons. 276P Chrysler Corp.
- Chillers, Water**.....“Cold Generator” covers line of 10 through 150 hp packaged, reciprocating water chiller units for industrial & commercial, comfort or process applications. Bulletin Ds-352. 276Q Trane Co.
- Cleaner, Steam**.....Complete steam cleaning facilities are provided for a fraction of the usual cost with the Steamrette according to a 4-page bulletin now available from the manufacturer. 276R Turco Products, Inc.
- Coils, Heat Transfer**.....Aerofin smooth fin heating and cooling coils offer you greater heat transfer and lower airway resistance. Can be spaced as closely as 14 per inch. Bul. S-55. 281 *Aerofin Corp.
- Coils, Heating & Cooling**.....Stainless—Continuous plate type with smooth drawn ferrules pressure-expanded to produce positive mechanical and thermal bond between tube and fin. Details on request. 276S Marlo Coil Co.
- Coils, Plate**.....Platecoil simplicity saves engineering, fabricating, installation, operation and maintenance costs in heat transfer. Units are compact and lightweight. Full details available in Bulletin P-61. 276T Tranter Mfg.
- Coils, Steam**.....Company offers bulletin on Type S Standard Steam Coils, including application recommendations, specifications, coil dimensions & nomenclature, tables of conversion factors, etc. 276U McQuay Inc.
- Coils, Steam**.....Company offers bulletin on Type J Jet-Tube steam coils, giving applications, features, specifications, coil dimensions & nomenclature, conversion factors, etc. Catalog 304. 276V McQuay, Inc.
- Combustion Equipment**.....If you have process heating problems, Eclipse will design combustion assemblies to meet your special requirements. See catalog describing burners, blowers, mixers and valves. 276W Eclipse Fuel Engrg. Co.
- Combustion Installations, Submerged**.....Thermal submerged combustion installations offer simplicity of design and construction plus extreme compactness. Details in Bulletin 110. 276X Thermal Research & Engrg.
- Components, High Temperature**.....Servo mechanism components have reliability under high ambient temperature conditions encountered in numerous airborne and nuclear applications. Bulletin 410. 276Y Norden-Ketay Corp.
- Condensers**.....Combination unit has condenser and ejector enclosed in one shell, does away with separate water and vapor systems. Vacuum production for steam turbines. Brochure M-5-32. 276Z Southwestern Engineering Co.
- Condensers, Evaporative**.....Catalog covers “MC” heavy duty evaporative condensers. Describes construction and components of units; includes selection data, plus dimension drawings. Bulletin 102. 276AA Baltimore Airoil Co.
- Condensers, Steam**.....Conseco condensers have deep water boxes; wide tube spacing; outside steam belt; quick opening doors on water boxes; full deaerating hotwell. Catalog presents information. 276BB Condenser Service & Engrg.
- Condensers, Evaporative**.....Stainless—3-150 tons. Suitable for indoor or outdoor location. All prime surface condensing coil. Available to your specifications. Company makes details available upon request. 276CC Marlo Coil Co.
- Condensers, Refrigerant**.....Bulletins 111, 123, and 131 describe evaporative refrigerant condensers that provide protection against tube scaling and control of compressor head pressures. 438h *Niagara Blower Co.
- Condensers, Surface**.....Sweco surface condensers offer maximum de-aeration, even distribution of steam, increased efficiency of heat transfer. Compact installation, servicing accessibility. Bul. M-3-32. 276DD Southwestern Engrg. Co.
- Condensers, Vapor**.....Contains diagrams and photographs showing apparatus for condensing vapors independent of a large supply of cooling water. For details on Aero vapor condensers. Bul. 129R. 276EE Niagara Blower Co.

Literature

Continued on page 280



ISOFLOW FURNACES NOW PROCESSING 300,000 b/d IN CATALYTIC REFORMERS

*... and more "Isoflows" are being
installed in the largest
reformers under construction*

The continuous production of high octane gasoline by catalytic reforming demands sturdy, efficient, soundly designed equipment. This is especially true of furnaces.

The wide acceptance of Petrochem-Isoflow furnaces is due to their high efficiency, dependable performance even under overload conditions, and their long service life. When you apply all the specifications and operating requirements to direct fired furnace design you'll find Petrochem-Isoflows most economically desirable, by any comparison.

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- Minimum Ground Space
- Simplicity of Design and Construction
- Short Length of Liquid Travel
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- Excess Draft for High Overload

PETROCHEM-ISOFLOW FURNACES

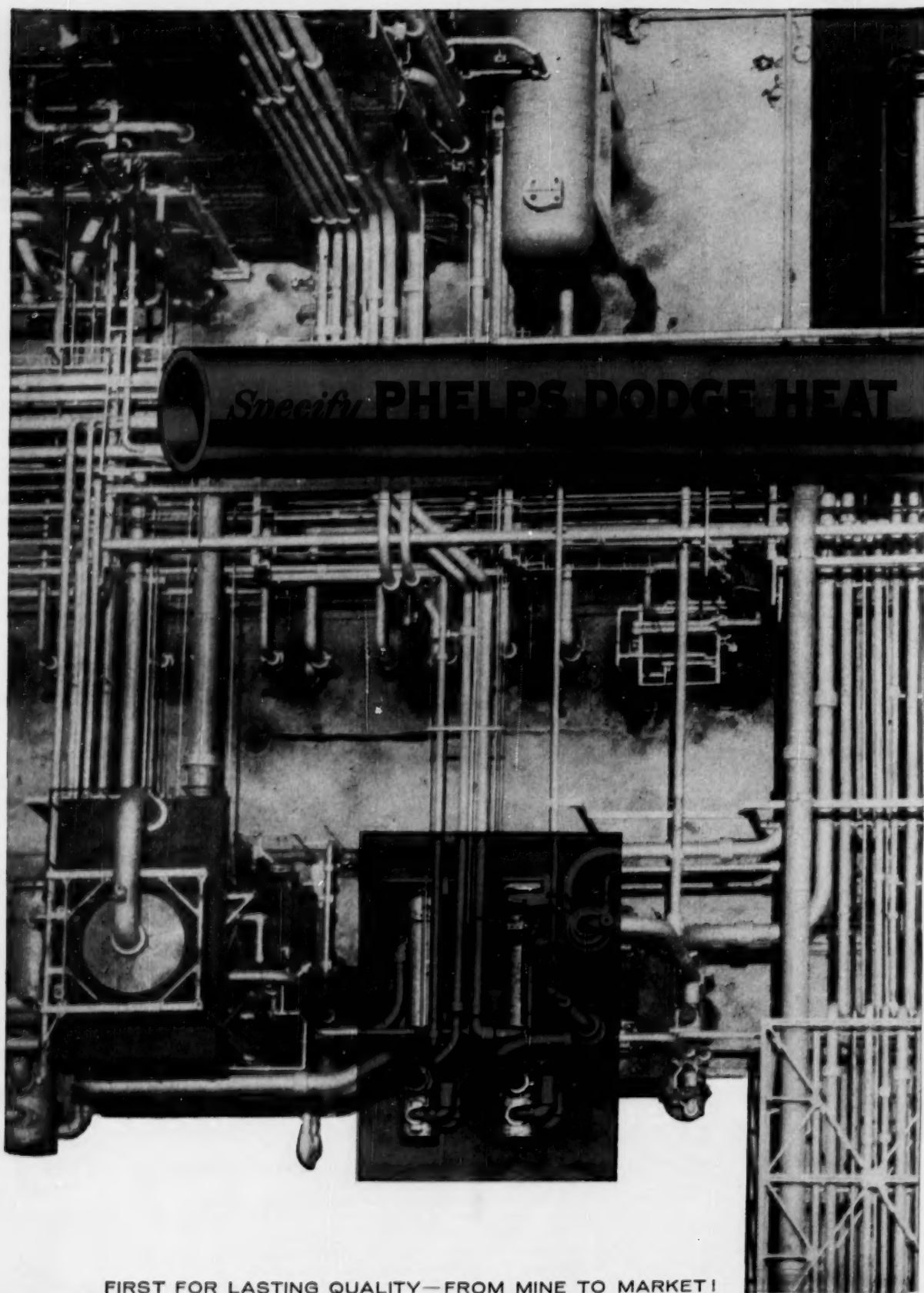
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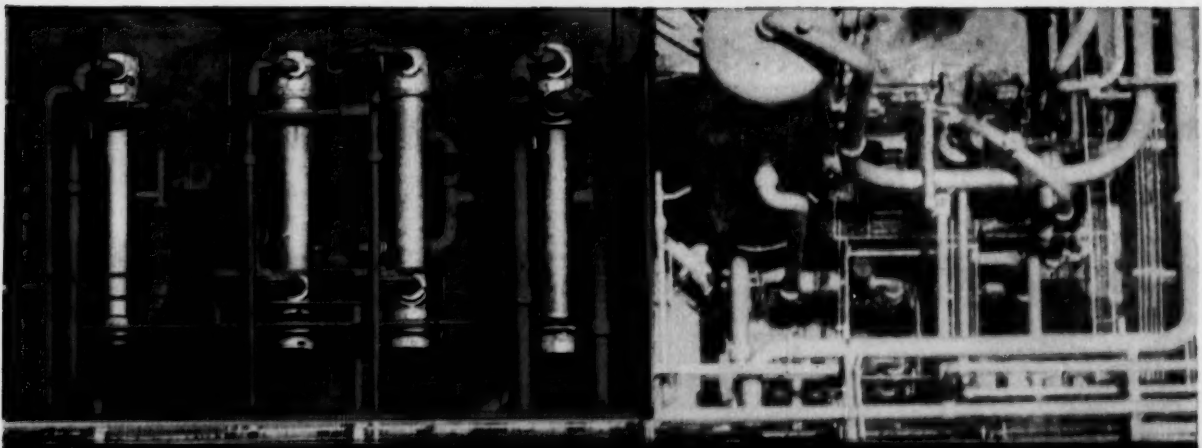
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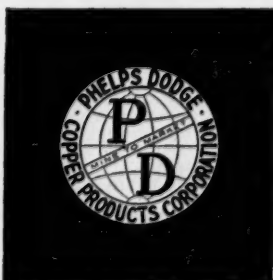


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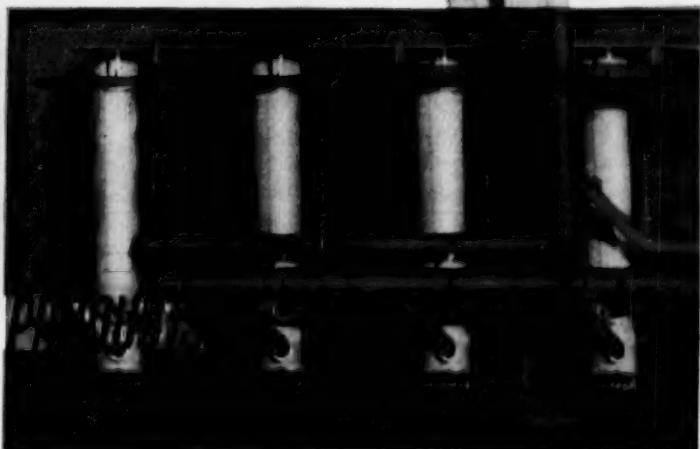
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New Heaters & Coolers

Literature Available

Coolers, Ammonia—
Generators, Steam

Condensers, Vapor..... Company offers information on vapor condensers which are independent of a large supply of cooling water. Fully automatic; save power and steam. Request Bulletin 129-R.
438i *Niagara Blower Co.

Coolers..... Bulletin 130, on Aero After Coolers, describes equipment for cooling compressed air or gases, holding temperatures below ambient atmospheric to prevent condensation of moisture.
438g *Niagara Blower Co.

Coolers, Ammonia, All Aluminum..... Heat exchanger is all aluminum except the steel Van Stone flanges on the heads and connections. Designed and fabricated to meet exacting needs. Bulletin 810.
280A Manning & Lewis Engrg.

Coolers, Cascade..... Impervite Cascade Coolers feature low-pressure-drop ends and flush nozzles. Furnished in 5 tube sizes, and 3 different models. Company makes further information available.
280B Falls Industries.

Coolers, Cascade..... For cooling corrosive liquids and gases. Low cost and maintenance, radi-used returns for low pressure drop as well as redwood waterguide strips. Catalog Section S-6820.
280C National Carbon Co.

Coolers, Liquid..... Packaged liquid coolers include a complete refrigeration cycle, compressor, motor and starter, refrigerant controls, liquid cooler, condenser, piping, wiring and insulation, etc. Request catalog.
280D Doyle & Roth Mfg. Co.

Coolers, Oil..... "WIO" Oil Coolers have application on all types of diesel and gasoline engines, hydraulic equipment, air compressors, machine shop coolant systems, etc. Request 8 p. bulletin.
280E Heat-X, Inc.

Coolers, Oil..... You'll find information on a complete line of oil coolers in Bulletin 120, Type BD Oil Coolers. These single and double pass coolers find use in lubrication, power and processing.
280F Schutte & Koerting Co.

Coolers, Oil, Hydraulic..... Bulletin describes air type and water type hydraulic oil coolers for industrial hydraulic systems. Discusses design and construction features. Bulletin 55-69.
280G Vickers, Inc.

Coolers, Pellet..... Coolaire pellet cooler and dryer described in bulletin 119 is simple, effective unit to handle pellets quickly and efficiently with minimum leakage of fines or dust.
416-7w Sprout-Waldron.

Coolers, Rotary Air..... Company furnishes information on the Davenport rotary air cooler (6'0" dia. x 80'0" long. Cooler is of aluminum construction to cool molten alum. Catalog "A."
280H Davenport Mach. & Foundry.

Cooler, Rotary-Louvre..... Four-page bulletin describes features of new cooler design where the louvers that move the solids are hollow to permit the flow of cooling water counter to the material flow.
280I Dunford & Elliott Eng'g.

Coolers, Sample Fluid..... To reduce sample fluid temperatures from 600 F., to 100 F., at pressures up to 1500 psi. For sampling boiler water, high temperature process fluids, etc. Form 2125.
280J Young Radiator Co.

Coolers, Steam-Jet..... Bulletin outlines advantages of steam-jet water cooling units for supplying commercial quantities of chilled water at temperatures as low as 35° F. Form 9143-B.
280K Ingersoll-Rand.

Cooling Coils..... "Prestfin—A Proven and Distinctly Better Pinned Cooling Coil" is the subject of Bulletin No. 158-A. Among Prestfin's advantages is claimed to be a perfect bond between fin and pipe.
280L Frick Co.

Cooling Equipment..... Company offers economy and reliability in cooling equipment for air conditioning, process work, ice making, quick freezing and other refrigerating purposes. Pull details in catalog.
280M Frick Co.

Cooling & Freezing..... Bulletins 95 and 105 describe Niagara "No-Frost" method for the production of extreme temperature for industrial uses or for food freezing, pre-cooling and storage.
438e *Niagara Blower Co.

Cooling, Liquid..... Cooling for chilled water or solutions, with elimination of freeze-up danger and with rapid chilling of large fluid volume and close temperature control. Bulletin 104.
438d *Niagara Blower Co.

Cooling Units..... Company's horizontal core units are vertical air discharge coolers for oil, water, chemicals and compressed gas, and also condensers for petroleum vapors, steam. Catalog 550.
280N Young Radiator Co.

Deaerators..... Bulletin describes deaerator guaranteed to provide complete deaeration. Gives operation, construction and features of down-flow design. Cochrane Publication 4652.
280O Cochrane Corp.

Deaerators..... Tells why this type of deaerator provides supply of hot water free from objectionable odor or taste due to steam and fully deaerated to prevent corrosion. Publication 4654.
280P Cochrane Corp.

Dehydrating Systems, Caustic..... Booklet SW-203 tells how system cuts installation and operational costs to less than half those for comparable pot-type system. Flow sheet details components.
280Q Swenson Evaporator Co.

Economizers, Water..... Bulletin WE-1 describes many models of UT-1 & LT-1 Water Economizers which range in capacity from 10TR to 225 TR base rating. Covers constructional details & specifications.
280R Mayer Refrigerating Eng.

Evaporation..... "An Open Door" tells about unit operations such as evaporation, crystallization filtration, pulp washing & spray drying as a means to reduced costs & improved quality. Bul. SW-100.
280S Swenson Evaporator Co.

Evaporators..... Quality products now being produced at low cost are: biochemicals; insulin—higher quality, potency, yield; vanilla extract—high total solids with only small alcohol loss. Ask for Bul. 300.
280T Mojonner Bros. Co.

Evaporators..... "Evaporators For Recovery of Mercerizing Caustic" gives information on design, application, operation and construction of this type of evaporator. Details in Bulletin SW-201.
280U Swenson Evaporator Co.

Evaporators, Film..... Company offers wiped film evaporator in 2" glass model and in these diameters of stainless steel: 12", 24", 36", 48" and 60". Available in monel, hasteloy. Data Sheet 39.
280V Pfadler Co.

Evaporators, Phosphoric Acid..... These evaporators feature: simple, compact design; time-proven, reliable; easy to operate; corrosion resistant; low maintenance; no fumes. Bulletin No. SW-202.
280W Swenson Evaporator Co.

Exchangers, Scraped Surface..... Vogt scraped surface exchangers offer advantages: positive flow-thru; uniform heat transfer rates; rotating scraper blades; closed pressure-type systems. Bul. PE-1.
280X Henry Vogt Mach. Co.

Any of These Bulletins . . .

. . . Free for the asking. Chemical Engineering's Reader Service department is geared up and ready for requests from you. A postpaid card inside the back cover is waiting to be filled out and sent. Just include the code numbers you see on the items describing the literature you want. We'll do the rest. Reader requests receive prompt attention. And you can use the cards throughout the coming year for these literature offerings. Use them, too, for further information about inventoried New Chemicals and New Equipment. All chemical and equipment descriptions in this issue are coded for your convenience when you want additional data.

1957 INVENTORY

Furnaces.....4 p. bulletin describes the complete line of Lindberg Hydrazing Furnaces for hardening high carbon & high speed tools without scale, decarb or carburization. Bulletin No. 97-HS.
281A Lindberg Engineering Co.

Furnaces.....Bulletin covers modern, large size, field-erected production furnaces for all forms of metal heat treating, and for continuous enameling, aluminum melting and ceramic requirements.
281B Lindberg Industrial Corp.

Furnace.....1957 edition of Petrochem Isoflow furnace manual has been broadened to include data from over 1,650 additional installations. Nine different types of Isoflow furnaces are described and illustrated.
281C Petro-Chem Development Co.

Furnaces.....For batch heating oils, chemicals, resins, varnishes, inks. Selas Duradiant enclosed or open settings offer fast, radiant gas heating, rapid burner response, and uniformity. Bulletin SC1015.
281D Selas Corp. of America.

Furnaces.....Bulletin describes 3 models of Surface Allcase furnaces. Can be used for gas carburizing, clean hardening, dry cyaniding, carbon restoration, clean annealing, oil quenching. Bulletin SC-174.
281E Surface Combustion Corp.

Furnaces, Industrial.....Bulletin illustrates variety of Surface equipment for all types of industrial heating applications, from small laboratory furnaces to large brazing furnaces. Bul. SC-175.
281F Surface Combustion Corp.

Furnaces, Melting.....8 p. catalog describes complete line of auxiliary items commonly used in conjunction with melting furnaces in the foundry. Company gives details in Catalog 601.
281G Lindberg Engrg. Co.

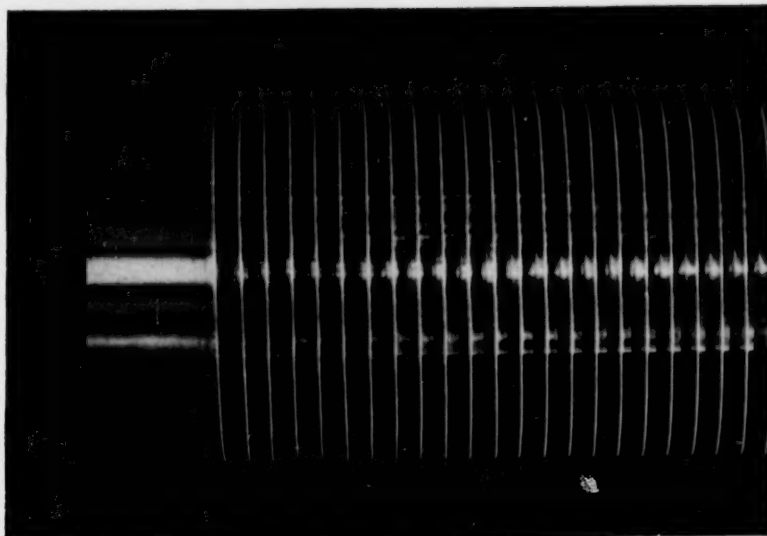
Generating Units, Steam.....Vogt steam generating units are available in types and sizes to meet individual plant needs for power, processing or heating. Available bulletins feature details.
281H Henry Vogt Machine Co.

Generators, Hot Water.....New line of hot water generators is presented in Bulletin 1000. Features forced recirculation of water through tubular circuits of the Boiler. Request a copy.
281I International Boiler Works.

Generator, Packaged Steam.....What you get in Erie City "PT" fire tube packaged steam generator is detailed in comprehensive catalog 56A. Using forced draft, unit has 5 sq. ft./hp.
281J Erie City Iron Works.

Generators, Steam.....Amesteam generators give extra years of service. Rugged construction exceeds code requirements; simple, efficient 3-pass concentric tube design. Request your catalog.
281K Ames Iron Works, Inc.

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AEROFIN Smooth-Fin Coils offer you

**Greater Heat Transfer
per sq. ft. of face area**

**Lower Airway Resistance
—less power per c.f.m.**

Aerofin smooth fins can be spaced as closely as 14 per inch with low air friction. Consequently, the heat-exchange capacity per square foot of face area is extremely high, and the use of high air velocities entirely practical. Tapered fin construction provides ample tube-contact surface so that the entire fin becomes effective transfer surface. Standardized encased units arranged for simple, quick, economical installation.



AEROFIN CORPORATION

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Write for Bulletin S-55

Aerofin is sold only by manufacturers of fan system apparatus. List on request.

A Bunch of Tubes on a Bender



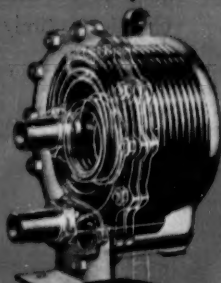
YOU'RE right—the place is New York's famous Bill's Gay Nineties.

But actually we put our tubes on a slightly different kind of bender and—*presto*—another Heli-flow® Coil! Now hundreds of thousands are proving to America's foremost industries Heli-flow's outstanding performance. Yes Sir, it all starts with a bunch of tubes on a bender!

Ask our representative to select the proper Heli-flow for your next heat exchanger problem.



Unique Graham method of bending completely assembled Heli-flow coil.



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1957 INVENTORY

Literature Available

Generators Steam—
Heat Exchangers

Generators, Steam.....Pre-engineered, standardized steam generators offered in 9 sizes, with capacities of from 50,000 to 150,000 lb. per hr. Includes drawings & design features. Bulletin B-55-4.
282A Foster Wheeler Co.

Generators, Steam......Book gives capacities, dimensions, construction features, instrumentation, accessories, sectional drawings & installation photos on series of steam generators. Bulletin PG-55-3.
282B Foster Wheeler Corp.

Generators, Steam......Modulatic Steam Generator is clean, quiet follows fluctuating load up or down with unmatched speed and accuracy—just set controls for the pressure you want. Booklet 586.
282C Vapor Heating Corp.

Generators, Steam.....Vogt steam generators are available in bent tube types and straight tube forged sectional header types for solid, liquid or gaseous fuels. Product bulletins available upon request.
282D Henry Vogt Mach. Co.

Generators, Steam.....Bulletin PG-55-3 describes shop fabricated packaged steam generators; Series "SC" steam generators, in larger capacities, are described in Bulletin B-55-4.
147d *Foster Wheeler Corp.

Heat Exchange Equipment.....Applications include polyacrylonitrile and acrylic copolymers, viscose (rayon and cellophane), cellulose acetate, cellulose ethers and polyesters. Bulletin V248.
282E Girdler Co.

Heat Exchange & Process Equipment....Company offers these: condensers, evaporators, jacketed kettles, ribbon mixers, agitators, reactors, pressure vessels, heat exchangers, etc. Bulletin 810.
282F Manning & Lewis Engrs.

Heat Exchangers.....The Alcotwin heat exchanger furnishes real economy in the first cost, in ease of installation and maintenance. Unlimited adaptability prevents obsolescence. Details available in Bulletin FH-3.
282G Alco Products.

Heat Exchangers.....Heat exchange system utilizing steam injection for sterilizing liquid and semi-liquid products. Complete specifications on Barnes Roto-Jet heat exchangers.
282H W. F. & John Barnes Co.

Heat Exchangers.....B&G Heat Exchangers feature efficient design, special features, precision workmanship, & correct selection & handling of materials. Request B&G catalog applications.
282I Bell & Gossett Co.

Heat Exchangers.....Bulletin describes corrosion-resistant Graphite Heat Exchanger. "Polybloc" features design that eliminates cemented joints and produces continuous turbulence. Bul. 6550.
282J Carbone Corp.

* From advertisement, this issue

1957 INVENTORY

Heat Exchangers.....Catalog illustrates CONSECO services; designs, manufactures and installs all types of custom heat exchangers for any application. Also contains table of thermal standards.
283A Condenser Service & Eng. Co.

Heat Exchangers.....How a Paracoll obstacle course gives you better heat exchange. Davis will create the proper turbulence to give you most efficient heat transfer in equipment. Request Bulletin 1000.
283B Davis Engrg. Corp.

Heat Exchangers.....Distributes Delanium Graphite Block Type Heat Exchangers for Powell Duffryn Carbon Products Ltd. of Hayes, England. Condensers, evaporators, heat exchangers. Cat. 456.
283C Delanium Graphite Co.

Heat Exchangers.....Bulletin contains data & illustrations of interest to designers & users of custom-built heat transfer equipment. Describes a number of heat exchanger types. Bulletin HE.
283D Downington Iron Works.

Heat Exchangers.....K-Fin coolers covered in Bulletin 1200 are designed and constructed to cool hydrogen and air circulating from generator windings, also process air and gases.
283E Griscom-Russell Co.

Heat Exchangers.....Company offers design service covering corrosion-resistant heat exchangers, chlorine coolers, falling film absorbers, and towers of all types. Request Design Service Bulletin.
283F Haveg Industries.

Heat Exchangers.....For corrosive or non-corrosive liquids and gases. Industrial builds these to suit the job and can furnish all auxiliary pumps, piping and fittings. Bulletin 600-2.
283G Industrial Filter & Pump.

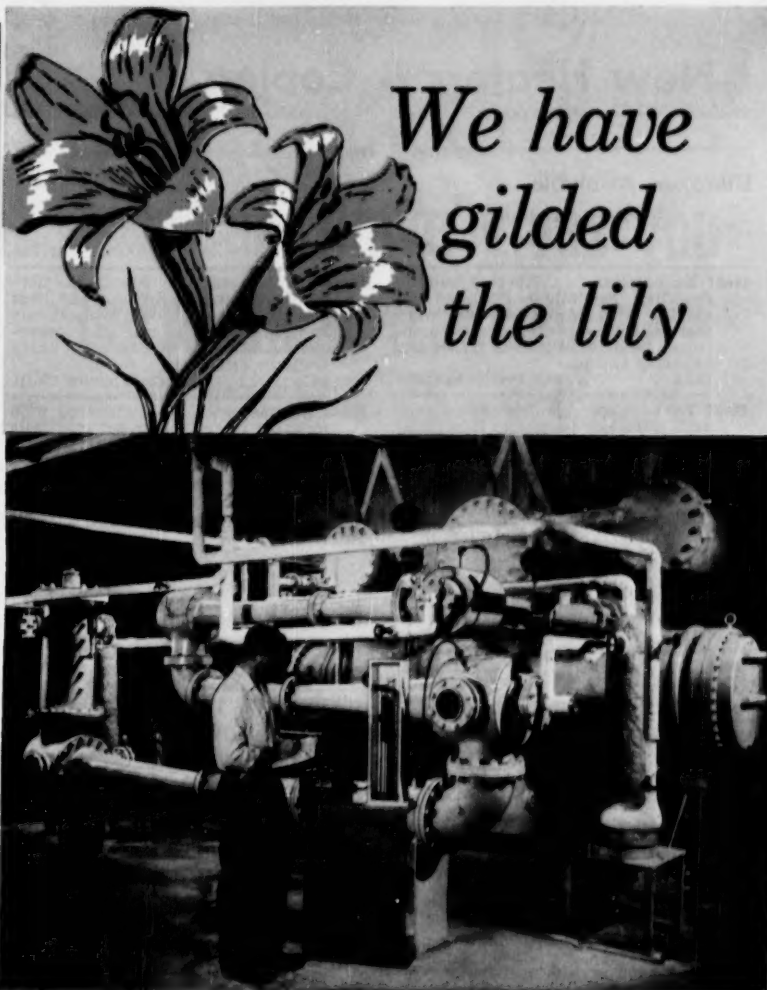
Heat Exchangers.....Bulletin M-306 catalogs company's standard heat exchange equipment. Tables present design data, approximate film coefficients, effect of fouling factor and tube characteristics.
283H Lummus Co.

Heat Exchangers.....Covers Karbate brand impervious graphite shell & tube heat exchangers. Engineered for maximum corrosion resistance & minimum maintenance. Catalog Section S-6840.
283I National Carbon Co.

Heat Exchangers.....Equipment offers chemical resistance to practically all corrosive fluids; resistance to thermal shock; high heat-transfer rates; low maintenance; etc. Catalog S-6740.
283J National Carbon Co.

Heat Exchangers.....Aero heat exchanger cools liquids & gases by evaporative cooling with atmospheric air, removing heat at rate of input, controlling temperature. Bulletins 120 & 124.
283K Niagara Blower Co.

Heat Exchangers.....Explains the functions of equipment to provide cooling of liquids in industrial plants independent of a large supply of cooling water and with additional savings. Bulletin 132.
283L Niagara Blower Co.



*We have
gilded
the lily*

*Here it is—six stages
and 10 microns absolute*

We now offer you absolute pressures approaching the ultimate—almost a perfect vacuum (pressures in the range of 1 to 100 microns).

If you can see advantages in this type of operation let us submit a proposal. Our equipment is tried and proved—and will provide you with the most economical and reliable source of extreme vacuum available today.

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New Heaters & Coolers

Literature Available

Heat Exchangers—
Heaters, Circulation

- Heat Exchangers.....** Revised bulletin describes exchanger designed for service with practically all commercial acid, salt and alkaline solutions. Includes selection chart and capacity ratings.
284A Nuken Products Corp.
- Heat Exchangers.....** "Flexible-standard" units are adaptable to vertical, inclined, or horizontal installation. Offer many features you look for in custom-built heat exchangers. Request copy of Bulletin 837.
284B Pfaudler Co.
- Heat Exchangers.....** Ross high pressure closure has simpler design; fewer parts to handle; greater safety factor; outer cover cannot corrode and bind; easily opened for inspection. Bulletin 5.6K1.
284C Ross Heat Exchanger.
- Heat Exchangers.....** The patented Ell Bolt construction employed on Vogt flotation head heat exchangers is the answer to reassembly without distortion or leak development. Request Bulletin No. HE-6.
284D Henry Vogt Mach. Co.
- Heat Exchangers.....** Whitlock heat exchangers save work, save engineering costs, save delivery time, save on repairs, save on flat costs. Company gives details in Bulletin No. 250.
284E Whitlock Mfg. Co.
- Heat Exchangers.....** Advantages of Whitlock Standards Hi-Transfer units include low cost, engineered design, interchangeable parts and units, non-ferrous construction, easy maintenance. Bulletin 170.
284F Whitlock Mfg. Co.
- Heat Exchangers.....** Describes Chromalox electric circulation heaters and methods of applying for controlled heating of water, oils, heat transfer media, steam, air and other gases. Product Bulletin 701.
284G Edwin L. Wiegand Co.
- Heat Exchangers.....** Book gives cost comparisons between the use of Wolverine Trufin and prime surface condenser tubing in heat transfer applications. "Comparative Heat Exchanger Costs."
284H Wolverine Tube Div.
- Heat Exchangers.....** For highly corrosive liquids or gas. Young stainless steel heat exchangers are designed to meet the specific needs of industry. Single pass or Multipass types. Catalog 1254.
284I Young Radiator Co.
- Heat Exchangers.....** Young type "R" heat exchangers perform under a maximum operating pressure of 75 psi and temperatures up to 300° F. For information, request Catalog 1149.
284J Young Radiator Co.
- Heat Exchangers.....** Describes Type "SSF" stainless steel heat exchangers for heating or cooling liquids & gases in industries where elements of corrosion to alloys are encountered. Catalog 1155.
284K Young Radiator Co.
- Heat Exchangers.....** Stainless steel designs offer features for a variety of operating conditions. Offers flexibility in length, shell diameter, built to ASME code specifications. Bul. 049.
135d *Pfaudler Co.
- Heat Exchangers.....** Standard normal-duty heat exchangers and heat absorbers of all types, to meet any specific requirements. Also corrosive-resistant "Karbate" units. Bulletin OH-49-1.
147e *Foster Wheeler Corp.
- Heat Exchangers.....** Engineered with movable baffles, operated manually or by timed and automatic motor drive, stationary tubes are scraped free of fouling materials. Request Bulletin 1000.
285 *Davis Eng. Co.
- Heat Exchangers.....** Exchangers for continuous, closed-circuit heating, cooling and regenerating. Wide range of capacities available. For details write for Bulletin G-515.
423b *Cherry-Burrell Corp.
- Heat Exchangers.....** Bulletins 120, 124 and 132 describe evaporative cooling apparatus that keeps control of temperatures within two degrees by modulating the flow of air. Saves water.
438J *Niagara Blower Co.
- Heat Exchangers, Acid Resistant.....** Important data on Swenson type of tube mounting, types of corrosion resistant materials and advantages of neoprene ring gaskets available in Bulletin SW-200.
284L Swenson Evaporator Co.
- Heat Exchangers, Aluminum.....** 16-page brochure, "Reynolds Aluminum for Heat Exchangers", explains advantages of aluminum, such as low cost, less tendency to foul than other metals, light weight.
284M Reynolds Metals Co.
- Heat Exchangers, Cascade.....** Specially constructed low-pressure-drop cells. Tubing extruded by improved method which results in more uniform heat transfer characteristics. Details upon request.
284N Falls Industries.
- Heat Exchangers, Cross-Bore.....** Features a rugged, heavy-duty, one-piece bundle. Cross-Bore exchangers are furnished in standard, single and multipass models. Company offers information.
284O Falls Industries.
- Heat Exchangers, Cubical.....** Provide maximum transfer surface in minimum space. Design accommodates operating pressures in the 150 psi range. Company provides information on request.
284P Falls Industries.
- Heat Exchangers, Graphite.....** Engineering manual tells complete story on Polybloc graphite-block heat exchanger. General description, how it operates, advantages, applications and design data.
284Q Carbone Corp.
- Heat Exchangers, Impervious Graphite.....** Accommodates operating pressures in 150-200 psi range; simple design results in resistance to physical shock; easy shell side cleaning. Bulletin No. 537.
284R Falls Industries.
- Heat Exchangers, Shell & Tube.....** Pyrex brand glass shell and tube units offer: resistance to corrosion, elimination of foreign material, simplicity of design, easy maintenance. Bulletin PE-33.
284S Corning Glass Works.
- Heat Exchangers, Shell & Tube.....** Bulletin describes shell and tube heat exchange equipment. Outlines construction features, general specifications and standard materials for this equipment. Bulletin No. HE-1.
284T Heat Transfer Co.
- Heat Exchangers, Shell & Tube.....** Type "SSF" stainless steel heat exchangers designed for heating liquids and gases in industries where elements of corrosion to alloys are encountered. Catalog 1155.
284U Young Radiator Co.
- Heat Exchangers, Shell & Tube.....** Type "F" fixed tube bundle heat exchangers—over 180 models. Offer greater initial and operating economies, more cooling surface per unit volume of space. Catalog 1254.
284V Young Radiator Co.
- Heat Exchangers, Tube & Shell.....** All normal tube and shell design features are available as standard. Custom designs are furnished on order. Further information available on request.
284W Falls Industries.
- Heat Recovery Systems.....** Digester heat recovery for pulp and paper mills in booklet. Discussion tells advantages of direct-contact condensers and indirect surface condensers for recovering heat.
284X Swenson Evaporator Co.
- Heat Transfer Equipment.....** Partial list of material processed with A-C heat transfer equipment: limestone, lime, dolomite, magnesite, alumina, bauxite, manganese oxide, iron ore, etc. Bul. 25C6177.
284Y Allis-Chalmers Mfg. Co.
- Heat Transfer Equipment.....** Brochure on Mario stainless steel heat transfer equipment deals with cooling towers, extended surface coils and other items. Request Stainless Steel Bulletin.
284Z Mario Coil Co.
- Heat Transfer Equipment.....** Company has skilled personnel and modern mechanical facilities, provides wide range of heat transfer equipment, including shell and tube reactors. Bulletin.
284AA Henry Vogt Machine Co.
- Heat Transfer Fluid.....** Company offers a list of designers and manufacturers of heating systems using their Aroclor 1248 non-pressurized liquid-phase heat transfer fluid. Fire-resistant, stable.
284BB Monsanto Chemical Co.
- Heat Transfer, Pilot Plant Unit.....** Girdler's line of Votator heat transfer units for laboratory or pilot plant work. High rate of heat transfer, pressures to 500 psi. Free Bulletin V217.
284CC Girdler Co.
- Heat Transfer Systems.....** Capacities can range from small portable units to large gas- or oil-fired units generating from 250,000 to over 10,000,000 B.T.U.'s per hour. Names of designers & manufacturers.
284DD Monsanto Chem. Co.

* From advertisement, this issue

1957 INVENTORY

Heat Treating....."Heat Treat Review" describes solution of heat treat problems in a California commercial heat treat shop, improvement of results with gas chemistry, etc. Volume 7, No. 1.
285A Surface Combustion Corp.

Heat Treating.....Bulletin explains the economic features of completely mechanized heat treat lines. It is a comprehensive commentary on mechanized heat treating. See Bulletin SC-176.
285B Surface Combustion Corp.

Heat Treatment.....Heat Treat Review, Vol.7, No.2, includes article on "Basic Principles of Quality Gas Carburizing." Simplicity and accuracy of process are graphically illustrated. Request a copy.
285C Surface Combustion Corp.

Heaters.....Bulletin describes Copes-Vulcan's Steam-Assist Desuperheater which applies a well-tested principle to reducing high steam temperatures. Includes specifications and capabilities. Bulletin 1024.
285D Blaw-Knox Co.

Heaters.....Company offers bulletin describing Horizontal Unit Heaters, giving proven features, specifications, basic steam ratings, & hot water ratings, conversion factors. Catalog No. 322.
285E McQuay, Inc.

Heaters.....Company offers bulletin describing Down Flow Unit Heaters, giving features, specifications, basic steam, hot water & quietness ratings, conversion factors, dimensions. Catalog 762.
285F McQuay, Inc.

Heaters.....Grid Products Catalog 956 holds complete story on Grid unit heaters, blast heaters and Grid radiation for chemical plant use. Grid cast iron steam heat transfer surface described.
285G D. J. Murray Mfg. Co.

Heaters, Air.....Peabody units are custom-engineered to individual job specifications. Compact and flexible in design, simple in operation. Require little space, attention or maintenance. Bul. 600A.
285H Peabody Engrg. Corp.

Heaters, Air.....Specify "Surface" air heaters and get these returns: save fuel, save installation costs, single burner unit. Build these savings into your convection heating equipment. Literature H54-15.
285I Surface Combustion Corp.

Heaters, Air.....Versatile design permits Thermal Type CA heater to be used in a variety of installations with either gas, oil or combination firing. Complete details in Bulletin 104.
285J Thermal Research & Engrg.

Heaters, Circulation.....8 p. bulletin describes Chromalox automatic electric circulation heaters, for controlled heating of water, oils, heat transfer media, steam, air and other gases. Bulletin 701.
285K Edwin L. Wiegand Co.

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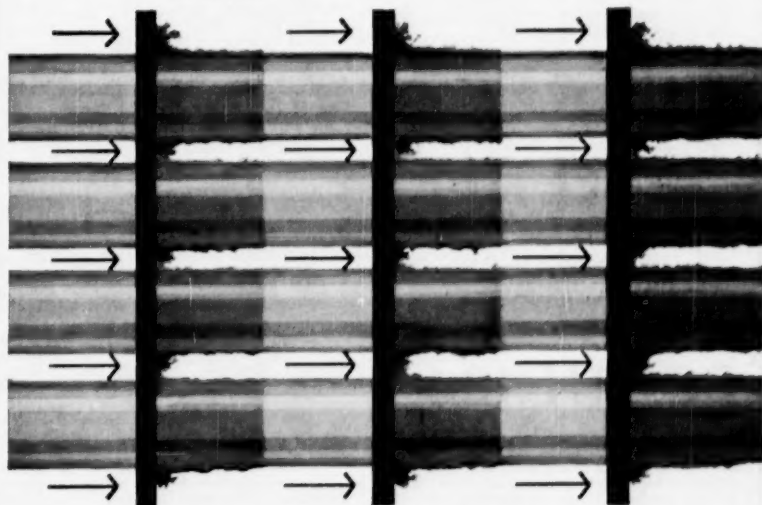
How a Paracoil "clean shave" gives you better heat transfer

Back and forth go the baffles . . . like blades . . . along the tube surfaces . . . shaving away accumulations of fouling materials . . . cleaning the heat exchanger . . . and giving process plants continuous, increased and better heat transfer.

This is the unique and principal feature of the Paracoil Self-Cleaning Heat Exchanger. Engineered with movable baffles, operated manually or by timed and automatic motor drive, stationary tubes are scraped and "shaved" free of fouling materials which are then carried away in the liquid.

The Paracoil Self-Cleaning Heat Exchanger eliminates the need to stop processing for cleaning purposes.

If you have a fouled heat exchanger problem, we may have the answer.



Davis Makes it — Better!

Below: Paracoil Vegetable Oil Chiller for converting a batch process to continuous cycle operation. Constructed of stainless steel and with an automatically timed, self-operating, self cleaning baffle assembly. The unit is presently improving product quality and rate of production in a vegetable oil processing plant.

Write for Bulletin 1000



DAVIS ENGINEERING CORPORATION

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New Heaters & Coolers

1957 INVENTORY

Literature Available

Heaters, Circulation—Traps, Steam

Heaters, Circulation......Bulletin presents Case Studies concerning the use of Chromalox electric heaters. Includes cases of the heating of fuel oils, steam, air and other gases. Bulletin F-1587.
286A Edwin L. Wiegand Co.

Heaters, Dielectric......Shorter processing time maximum production per unit of floor space, streamlined work flow, minimum heat loss, improved working conditions, simplified operation. Bulletin 15B6431C.
286B Allis-Chalmers Co.

Heaters, Electric......In the 1957 catalog of G. E. heaters and heating devices you'll find a 16-page power requirements section showing short and long calculations of heating applications.
286C General Electric Co.

Heaters, Electric......Information and design selection charts on strip heaters, natural and forced convection air heaters, oven heaters, immersion heaters, cartridge heaters, melting pots in Bulletin 27-620.
286D Westinghouse Elec. Corp.

Heaters, Electric Cartridge......Bulletin describes Chromalox electric cartridge heaters of a style and size for every spot heating job. Describes features that give lead wire protection. Bulletin 850.
286E Edwin L. Wiegand Co.

* From advertisement, this issue

Heaters, Electric Strip......Chromalox Electric Strip Heaters provide uniform, precise heat to fit the size and shape of your production equipment. For information, request Bulletin No. F1566.
286F Edwin L. Wiegand Co.

Heaters, Electric Oil......Data Sheet 709B tells how electric oil heaters raise heavy fuel oils to the temperatures required for good combustion and performance in modern oil-burning systems.
286G Hauck Mfg. Co.

Heaters, Far-Infrared......Illustrated bulletin describes advantages of Chromalox electric radiant heaters, their design, and variety of applications. Includes specifications, controls & prices. Bulletin CS804.
286H Edwin L. Wiegand Co.

Heaters, Far-Infrared......Bulletin describes Chromalox Adjustable Area Far-Infrared Heaters. Includes description of features, accessories, information on how to install type Rutu Elements. Bulletin CS-607.
286I Edwin L. Wiegand Co.

Heaters, Gradation......Advantages include zones of controllable heat input, complete combustion, uniform application of heat, and shop-assembly or field-erection as desired. Bulletin S1043.
286J Selsa Corp. of America.

Heaters, Gradation......Makes available detailed literature—"Try the Gradation Heater for Economical Ethylene Production" and Bulletin 104, "Gradation Heating for Petroleum and Chemical Processing."
286K Selsa Corp. of America.

Heaters, Immersion......Complete line of four basic types for all needs described in 4-page bulletin includes exclusive "U" type designed to solve difficult heating of plating and pickling baths.
286L Gio-Quartz Electric Heater.

Heaters, Liquid......System for heating liquid heat-transfer medium is described in Catalog 162. Operating at atmospheric pressure, system supplies accurately controlled indirect heat.
286M S. Morgan Smith Co.

Heaters, Process......Speedytherm process heater may be used for liquid or vapor phase heating. Dimensions, electrical ratings and other engineering data in Bulletin 38-T-1. Request a copy.
286N Pantex Mfg. Corp.

Heaters, Thermal Liquid......Company's thermal liquid heaters offer advantages: accurate temperature control; high heat transfer rates; low cost, low pressure operation; heat on demand. Bulletin TI.H.
286O International Boiler Works.

Heaters, Unit......Bulletin includes hot water and steam performance tables, dimensions, selections, applications, descriptions of cabinets, elements, motor mountings, fans and accessories. Bulletin 700A.
286P American Air Filter Co.

Heaters, Unit......Grid unit heaters feature trouble-free heating service in the major chemical plants for over 25 years—no maintenance or repairs. Learn about Grid unit and blast heaters and radiation.
286Q D. J. Murray Mfg. Co.

Heating Elements......First authoritative book of its kind, 12-page booklet Form A-1472 gives information on handling unpacking, storage, installation and replacement of silicon carbide elements.
286R Carborundum Co.

Heating Elements......Brochure gives case histories of the application of Norton "Hot Rod" Crystolon Heating Elements. Details in "Leading Manufacturers Report Saving with 'Hot Rods'."
286S Norton Co.

Heating, Steam......Bulletin 109 describes a method which utilizes completely the sensible and latent heat of high pressure steam. Trustworthy, longlived equipment for heating or process.
438b *Niagara Blower Co.

Heating Systems, Dowtherm......Descriptive information on Dowtherm heating systems for processes requiring precision control of high constant temperatures at low pressures, in Bulletin ID-54-5.
286T Foster Wheeler Corp.

Heating Systems, Process......Company can design and install Dowtherm high-temperature, low-pressure heating systems for any process requirements. Full information offered in Bulletin ID-54-5.
147b *Foster Wheeler Corp.

Heating Units......Describes Chromalox Electric Heating Units and Equipment. Data on heating elements, immersion elements, tank immersion heaters, water circulation heaters, etc. Catalog 50.
286U Edwin L. Wiegand Co.

Heating Units......"101 Ways to Apply Electric Heat" describes methods of electrically heating liquids, air, gases, machine parts and process equipment. Chromalox heating units. Catalog F1550.
286V Edwin L. Wiegand Co.

Heating Units......"How to Solve Winter Problems With Electric Heat" tells how to prevent condensation, melt snow & ice, heat rooms, provide hot water for the All-Electric Building. Bul. F1575.
286W Edwin L. Wiegand Co.

Heating Units, Immersion......"Surface" immersion heating, with diffusion combustion and the heating tube completely immersed in the liquid put the heat where you want it. Gas firing. Bulletin SC-156.
286X Surface Combustion Corp.

Humidifying Systems......All units needed for industrial humidifying systems, other than piping and wiring, are illustrated and described in Bulletin 82. Centralized listing simplifies buying problems.
286Y Spraying Systems Co.

Nozzles, Gas Burner......Data sheet No. 804D furnishes complete information on burner nozzles used for blast firing of air-gas mixtures into open ports of furnaces, kilns, kettles, etc.
286Z Hauck Mfg. Co.

Ovens......Aminco forced-convection ovens eliminate hot and cold pockets, provide temperature control, minimize power consumption. Motor-driven blower for uniform distribution. Bul. 34-37-C.
286AA American Instrument Co.

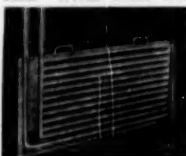


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COIL**

BOOTH 184

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should become acquainted with the money-saving Dean Thermo-Panel Coil which is NOT a pipe coil at all. It TAKES THE PLACE of pipe coils. Needs much less space. Weighs less. More easily installed, removed, and cleaned. Usually costs much less. Can be CURVED to fit tanks, drums, valves, etc. More efficient and economical. Adaptable to all piped heating and cooling problems.



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- Ovens.....**Brochure describes Blue M power-o-matic mechanical convection ovens, lab-heat muffle furnaces, stabil-therm gravity type ovens, stabil-therm mechanical recirculating, etc. Request Bul. 5660. 287A Blue M Electric Co.
- Ovens.....**Despatch Electric V-35 Production Ovens can bake plastic items and bake standard and wrinkle finishes on metal parts for other products. Automatic temperature control. Get V-Bulletin. 287B Dispatch Oven Co.
- Ovens.....**Company offers illustrated bulletin describing laboratory and production ovens. Includes ratings, accessory information, features, diagrams applications and specifications. Bulletin No. 100. 287C Despatch Oven Co.
- Ovens.....**Popular in Plastisol industry where uniform temperatures are required. Used to determine curing and baking temperatures, and for batch production of large items. "Ovens for Industry." 287D Kirk & Blum Mfg. Co.
- Ovens.....**Bulletin 157, 16 p., illustrates and describes a complete line of industrial ovens for baking, drying, curing and heat treating. Covers batch type ovens, conveyor type, heating systems. 287E Young Bros. Co.
- Ovens, Dielectric.....**Company announces line of dielectric ovens suitable for heating, baking, drying and curing a variety of non-metallic materials. Full details in Bulletin 56-E. 287F Young Bros. Co.
- Panels, Heating.....**Bulletin describes Web Heating with Chromalox Far-Infrared Radiant Panels. Features, advantages, installation, standard ratings, dimensions & prices. Catalog CS-606B. 287G Edwin L. Wiegand Co.
- Pellet Cooling & Drying.....**Sprout-Waldron "Rotaircool" is a modern, efficient pellet cooler, dryer and conveying system. Complete assembly requires little space, little horsepower. Bul. 177. 416-7r *Sprout-Waldron Co.
- Pilots, Gas.....**Data sheet No. GB811 highlights features of this blast type pilot that give it exceptional flame stability and long life. Includes aids to selection and application of the pilot. 287H Hauck Mfg. Co.
- Radiant Panels, Modular.....**Modular panels completely factory assembled with built-in continuous bus, reflector, insulation, frame and mounting. High-intensity heat source in four sizes. Bul. CS-606. 287I Edwin L. Wiegand Co.
- Recirculating Units.....**Brochure provides detailed technical data and description of the Standard Mayer Chil-er Recirculating Units. Covers complete specifications in chart form. Request Bulletin Ch-3D. 287J Mayer Refrigerating.
- Refractory Arch, Suspended.....**Leaflet "Insulating Refractory Arch, Type ALR" gives details about design featuring a dense refractory hanger which is applicable where there is rapid heating and cooling. 287K M. H. Detrick Co.
- Refrigerating Machines, Absorption.....**Carrier absorption refrigerating machine cools with steam or hot liquids. Can use it to cool water or chemicals or to condense vapors. Request 36 p. booklet. 287L Carrier Corp.
- Refrigerating Machines, Centrifugal.....**Compact, lightweight hermetic centrifugal cooling unit features pushbutton operation and low installation costs. Company gives details in Bulletin 19C-100. 287M Carrier Corp.
- Refrigerating Units.....**Bulletin 97-F shows where low-pressure refrigeration units designed and built by Frick are working and what they do to satisfy the exacting requirements of the users. 287N Frick Co.
- Refrigeration, Vacuum.....**C. H. Wheeler Steam Jet Vacuum Refrigeration cuts cooling time, raises process quality. Also in drying, deodorizing, refining, cooling, distilling, filtering. Bulletin 1462. 287O C. H. Wheeler Co.
- Replacers, Lamp.....**Now any infrared reflector bank can be equipped with glassless, glareless, self-cleaning Metaray elements. Radiation spread more uniformly. Complete details in Bulletin L-1104. 287P Edwin L. Wiegand Co.
- Tandem Combustion Units, Oil-Gas.....**You will realize higher profits from your heaters when National Airoil vertical or horizontal tandem units are specified. For full details, request Bulletin No. 498. 287Q National Airoil Burner Co.
- Thermo-Panels.....**Cost less and perform better—an improvement on pipe coils. Save space and heat or cool more efficiently. For use in heating and cooling of liquids, slurries, etc. Bulletins 355 and 257. 287R Dean Thermo-Panel Div.
- Towers, Cooling.....**The "MTT" Cooling Tower is designed especially for industrial applications where process water temperatures are critical and must be accurately maintained. See Catalog 203. 287S Baltimore Aircoll Co.
- Towers, Cooling.....**Catalog section III, Pile 3D3, Sheet 1 tells the user facts about maintenance of redwood cooling towers. Includes types of deterioration, and how to control and prevent it. 287T California Redwood Asso.
- Tower, Cooling.....**32-page Bulletin CT-57-1 describes induced-draft counterflow cooling tower. Lists advantages, describes construction and operation of all major parts, includes data sheet. 287U Foster Wheeler Co.
- Towers, Cooling.....**High cooling efficiency, low drift losses and rugged construction of line of FW induced draft cooling towers mean lasting economy and dependability in service. Bul. CT-56-11. 287V Foster Wheeler Corp.
- Tower Cooling.....**Illustrated brochure shows features of Galloway counter-flow cooling tower that make possible a 5-year warranty. Tower is non-leaching Chemonited Douglas Fir which resists fungus. 287W G. W. Galloway Co.
- Towers, Cooling.....**If you would like to know the Marley method of measuring performance of cooling towers, regardless of make or vintage, request "Test Your Tower." Assurance of complete satisfaction. 287X Marley Co.
- Towers, Cooling.....**Stainless—2-150 tons. Suitable for indoor or outdoor location. Marlo heat transfer equipment now available to your specifications. Company makes information available on request. 287Y Marlo Coil Co.
- Towers, Cooling.....**Two brochures should prove helpful: "Comparative Performance of Cooling Tower Packing Arrangements" and "Answers to 15 Questions about Pritchard Induced Draft Cooling Towers." 287Z J. F. Pritchard & Co.
- Towers, Cooling.....**Features: superior shaft seals, heavier bearings, more conservative horsepower ratings, more rigid housing & more positive lubrication. Request Pritchard Cooling Tower brochure. 287AA J. F. Pritchard & Co.
- Towers, Cooling.....**Detailed Specifications with dimensioned drawings are shown in Bulletin 5.1902 on LoLine cooling towers. Structural and mechanical features are illustrated. 287BB J. F. Pritchard & Co.
- Towers, Cooling.....**Complete line of induced-draft, counter-flow cooling towers designed to meet the specific needs of the chemical and process industries are described in Bulletin CT-57-1. 147c *Foster Wheeler Corp.
- Traps, Steam.....**Non-freeze service is guaranteed for outdoor steam trap depicted in bulletin 257. Specifications and capacities of the traps are given along with dimensions and piping diagram. 287CC V. D. Anderson Co.
- Traps, Steam.....**Within 4-page Bulletin 154, you will find a complete condensed buying guide on steam traps, containing specifications, capacities, sizes, pressures, weights and list prices. 287DD V. D. Anderson Co.
- Traps, Steam.....**Company offers 44-p. Steam Trap Book, a factual guide to better trapping, as well as the No. 1, 1956 issue of the Armstrong Trap Magazine containing details, drawings, photographs. 287EE Armstrong Machine Works.
- Traps, Steam.....**44 p. book tells how to select traps for nearly every class of equipment; gives prices, physical data, service pressure ratings of Armstrong traps; etc. See company's free Catalog J. 287FF Armstrong Machine Works.
- Traps, Steam.....**Literature now available details advantages of a low-cost Series A thermostatic trap designed for frequent shut-down and startup, handling of large air volumes. 287GG Clark Mfg. Co.
- Traps, Steam.....**Give faster, more effective condensate removal. Powerful valves action, positive shut-off, high capacity & each unit service tested. For more details, request Bulletin No. 1055. 287HH W. H. Nicholson & Co.

Literature Available

Traps, Steam—
Vaporizers, Dowtherm

Traps, Steam.....Sarco Thermostatic steam traps are compact and light, freeze-proof and have only one working part, which can be inspected or replaced in a few minutes. Bulletin 250.
288A Sarco Co.

Traps, Steam.....Sarco type TD steam trap is machined from a solid block of stainless steel. Has only 3 parts... cap, disc and body... and not even a valve-closing mechanism. Details in Bulletin 257.
288B Sarco Co.

Traps, Steam.....60 p. catalog contains complete information on full line of steam traps. Dimensions, capacities and prices of traps, strainers, separators, reducing valves and engine stops.
288C Strong, Carlisle & Hammond.

Trap, Steam.....Catalog 600 announces development of the Mono-valve float-thermostatic steam trap designed to drain steam-hot condensate. Unique feature is single valve that performs three jobs.
288D Velan Valve Corp.

Traps, Steam.....Descriptive bulletins are available on several types and sizes of Yarnall Impulse steam traps for light or heavy condensate loads, normal or marine conditions.
288E Yarnall-Waring Co.

Traps, Steam.....Piping diagrams for 22 kinds of chemical processing equipment are shown on a chart 11 x 25 inches. There are 6 pages of steam trap selector tables covering 35 types of equipment.
288F Yarnall-Waring Co.

Traps, Steam.....Bulletin T-1746 describes the Series 40 impulse steam trap designed especially to handle heavy condensate loads. The 4-page bulletin gives sizes, capacities, applications.
288G Yarnall-Waring Co.

Traps, Steam.....Yarway 20-A Impulse Steam Trap has light load applications in refineries, chemical and processing plants, power plants, hospitals, schools and institutions, etc. Bulletin T-1739-X.
288H Yarnall-Waring Co.

Traps, Steam.....Yarway Impulse Steam Traps feature: small size—lightweight; only one moving part; stainless steel; won't freeze up. For information, request Trap Selector, Bulletin and Diagram.
288I Yarnall-Waring Co.

Traps, Steam.....Helpful 8 p. bulletin deals exclusively with trapping steam tracer lines. Yarway 1/2" No. 20-A impulse steam trap is the right trap for steam tracer lines. Send for Bulletin.
288J Yarnall-Waring Co.

Trap, Steam, Thermostatic.....Bulletin 257 tells about a line of industrial thermostatic steam traps designed for weather conditions encountered in outdoor processing areas as well as inside.
288K Internat'l. Basic Economy.

Tubes, Condenser.....Arsenical Admiralty-439 and Ambraloy-927 condenser tubes for normal service; Cupro Nickel, 10%-755 and Cupro Nickel, 30%-702 for stress-corrosion cracking. Pub. B-2.
288L American Brass Co.

Tubes, Condenser.....For condenser & heat exchanger tubes & plates—cupro-nickel—30%, 10%; admiralty metal; arsenical copper; aluminum bronze—5%; etc. "Life Extension for Condenser Tubes."
288M Revere Copper & Brass.

Tubes, Condenser.....Wolverine bends condenser tubes to your specifications—ships them in disposable box-type pallets—ready for direct insertion into your heat exchanger or condenser. Send for Catalog.
288N Wolverine Tube Div.

Tubes, Heat Exchanger.....Contains the right amount of antimony to resist dezincification and other forms of corrosion. For information request Chase Condenser and Heat Exchanger Booklet.
288O Chase Brass & Copper Co.

Tubes, Heat Exchanger & Condenser.....Bulletin emphasizes quality, dependability and economy of electric resistance welded carbon steel tubing in applications involving heat transfer. Bul. TB-412.
288P Babcock & Wilcox Co.

Vaporizers.....Engineers analyze entire process system before recommending the proper high-temperature, low-pressure vaporizer. They design, build, install and service vaporizers. Bul. ID-54-5.
288Q Foster Wheeler Corp.

Vaporizers.....Convert liquid chlorine to dry vapor fast and economically. Available in five standard sizes with ratings from 500 to 8000 pounds per hour. For information, Bulletin No. 132B.
288R Whitlock Mfg. Co.

Vaporizers.....Eclipse horizontal vaporizers have a large enclosed furnace for high heat output without strain. Low liquid level permits gravity return of condensate. Send for Catalog A-100.
86 *Eclipse Fuel Engineering.

Vaporizers, Dowtherm.....Completely packaged, gas-fired Eclipse Dowtherm Vaporizers give fast, uniform process heating, and their low operating pressures makes them safer. Catalog A-100.
288S Eclipse Fuel Engrg. Co.

Vats.....Vats are heavy-duty for zone control heating, cooling. Scraper blade and propeller agitators. Four models including vacuum and pressure processors. Bulletin G-512.
423d *Cherry-Burrell Corp.

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Reader Service postcards can help you get more information. They're inside the back cover: easy to use, reliable, speedy.

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Products Index..... p. 497

Every item in each of these sections is coded. Simply write the code number of the items in which you're interested, fill in your name and address, then mail. Answers come to you direct from the manufacturers.

For more information on items mentioned in the ads in this issue, use the page number as code number. Write this number on the postcard. And when ads mention more than one item, the Product Index (p. 497) will give you the right code for the one you're interested in.

Postcards can't be used for items listed in the Inventory of Plants but they can be used for the literature items which start on p. 162.

✓ Want more information? Use key numbers & postcard

Actuator, Valve

Electric. (289A)

... Series D valve actuator is all-electric device used with modern proportional-position electronic-control systems. Actuator combines features of all-electric system with mechanical

simplicity and ruggedness of commercial pneumatic operators. Yet, it uses no fluids. System is sensitive to 0.5% of controller signal span.—*Conosflow Corp., Philadelphia 3, Pa.*

Analyzer, Gas

Uses thermal conductivity (289B)

... Thermal conductivity type of gas analyzer measures process stream gases such as CO₂, H₂, NH₃. Most components are standard but specially designed ones are available. Flexi-

bility of construction makes instruments applicable to a wide variety of gas analysis problems, yet satisfy individual plant needs.—*Arnold O. Beckman, Inc., South Pasadena, Calif.*

Analyzer, Gas

Specific for one gas in a multi-component mixture. (289C)

... With new gas analyzer, concentration of one gas in a multi-component mixture can be measured more specifically without sample condition-

ing procedures. Reproducible results can be obtained within about 2% of full-scale reading.—*Mine Safety Appliance Co., Pittsburgh, Pa.*

Analyzer, Gas

Mass spectrometer for plant or laboratory. (289D)

... Mass spectrometer for analyzing gases operates by radio frequency rather than more conventional magnetic principle. Instrument alter-

nately monitors any six preselected gases from mass 12 to 100.—*Beckman Instruments Div., Scientific Instruments Div., Fullerton, Calif.*

Analyzer, Gas

Uses sound waves, is rapid and sensitive over wide range. (289E)

... Gas analyzer uses sound waves to monitor gas mixtures, detect minute amounts of harmful gases, measure gas fractions in chromatography, study isotope concentration in certain

gases. Sensitivities achieved: 0.005% O₂ in air and 0.00061% H₂. Sensitivity remains high over entire range from 0 to 100%.—*National Instrument Laboratories, Inc., Riverdale, Md.*

Analyzer, Infrared

Moderately priced for continuous-flow analysis. (289F)

... Lira model 200 electronic infrared analyzer is simplified instrument designed to meet most industrial requirements at lower cost. It can solve great majority of problems where

there's need for quick, accurate analysis of single component in a simple or complex mixture of gases or liquids.—*Mine Safety Appliances Co., Pittsburgh 8, Pa.*

Analyzer, Plant Stream

Radiological, increases output of ammonia synthesis plant. (289G)

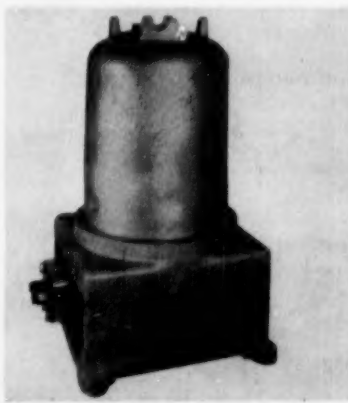
... Radiological gas analyzer records argon and ammonia content of circulating gas in ammonia synthesis plants of Shell Chemical Corp. at Pittsburg and Ventura, Calif. Instrument operates by measuring ionization produced in a gas mixture by beta radiation from radioactive source. Ionization chamber doesn't distinguish

one component from among mixture of several. Thus, instrument is effective only on binary mixtures. Technique has also been used for detection in gas-liquid partition chromatography and for studying diffusion processes in beds of porous catalyst carriers.—*Hallikainen Instruments, Berkeley, Calif.*

Analyzers, Plant Stream

Chromatographic, analyze hydrocarbon streams. (289H)

... Two companies—Foxboro and Watts Mfg. Co.—have introduced the first chromatographic stream analyzers to appear on the instrument market. Instruments have been designed to operate reliably under rugged plant conditions. Sampling, analysis and recording are automatic. Foxboro reports analysis times on multi-component hydrocarbon streams have run from 5 min. for methane, ethane and propanes and up to 30 min. for ethane, ethylene, propanes (including propylene), butanes and butenes. Watts says that on ethylene recovery system their instrument can analyze a stream in about 12 min.—*Foxboro Co., Foxboro, Mass.; Watts Mfg. Co., Ronceverte, W. Va.*



Analyzers, Plant Stream

Continuous flow refractometers. (290A)

... Industrial refractometers work on aqueous solutions where infrared analyzers are ineffective. In general, refractometers can be used to: analyze mixed petroleum fractions that have boiling points within a few degrees of each other to detect composition changes of 0.1% or less; check blend-

ing or analysis of two components in a mixture; monitor processes such as hydrogenation of edible oils; monitor effluents from a chromatographic column; adjust solution concentrations. —*Barnes Engineering Co., Stamford, Conn.; Manufacturers Engineering Equipment Corp., Hatboro, Pa.*

Analyzing System

Checks operation of steam-generating unit. (290B)

... Operation of giant steam-generating unit can be analyzed within a few hours through electronic system developed jointly by Babcock & Wilcox Co. and Bailey Meter Co. System will

help engineers determine quickly and economically problems such as sources of heat losses, most efficient types of fuels. —*Bailey Meter Co., Cleveland 10, Ohio.*

Cabinets, Instrument

Building block enclosures. (290C)

... Variety of housings for instrumentation and allied equipment can be fabricated by selecting components from 75 mass-produced, metal-cabinet enclosures and 125 different sub-parts.

With standard line, industry can satisfy 75% of its enclosure needs for instrumentation and automation equipment. —*Elgin Metalformers Corp., Elgin, Ill.*

Caliper, Sonar

Measures size, shape of underground cavities. (290D)

... Electric-line tool, called a sonar caliper, measures the size and shape of underground cavities by converting reflected sound waves into distance. Survey made with caliper consists of a series of horizontal cross-sections

of the underground cavity. Tool can be used in various applications such as the measuring of brine well cavities and determining capacity of LPG storage reservoirs. —*Dowell Inc., Tulsa, Okla.*

Cell, Analysis

High-temperature thermal type extends range. (290E)

... Effective operating range of chromatographic analysis can be extended appreciably through use of new high-temperature thermal conductivity cell. Exceptional stability and sensitivity at high temperature is achieved by use of flake thermistors

as sensing elements. Range for model 75 cell extends from 30 to 325 C. and will accommodate liquids with boiling points up to 425 C. This is virtually at the upper limit of chromatography. —*Barnes Engineering Co., Stamford, Conn.*

Cell, Load

Gives off-center loading stability. (290F)

... Off-center loading stability is big feature of load cell marketed specifically for bin, tank and hopper weighing systems. Unique design called

"rolling ball" construction provides all-important off-center loading stability. —*A. H. Emery Co., New Canaan, Conn.*

Chromatograph, Gas

Analyzes one to five process streams. (290G)

... Chromacon Series 9485 gas chromatograph, for continuous cyclic analysis of gaseous or liquid process streams, is available in two models to

handle either one or up to five streams. It comes with recorder, detector cell, charging device. —*Podbielniak Inc., Chicago 11, Ill.*

Components, Pneumatic

For data reduction. (290H)

... Already in use in data reduction systems, pressure transducer and pressure comparator have been made available to instrument market. Transducer converts a 3-15 psi. signal to a.c. millivolts directly proportional to

pneumatic input. Comparator relates an unknown pneumatic signal to a reference pressure. When the two pressures reach an equilibrium, an electrical contact opens. —*Fischer & Porter Co., Hatboro, Pa.*

Computer, Electronic

Knows right from wrong. (290I)

... Intelligence built into Automex electronic brain enables it to distinguish right and wrong decisions, promises to revolutionize control of complex industrial processes. Computer must "reach top with fewest

steps in the shortest time." It can decide after every step whether it took the right or wrong step. Based on decision, next step it takes is one most likely to succeed. —*Westinghouse Electric Corp., Pittsburgh, Pa.*

FOR MORE INFORMATION on any item in this section, write its code number on one of the Reader Service postcards (inside back cover) and mail. It's fast and easy.

Computer, Analog

Built into cat cracker in oil refinery. (291A)

... Automatic Data Logger and Computer has been built into Model IV fluid catalytic cracker at Belot Refinery of Esso Standard S. A. near Havana, Cuba. Computer records key refining process variables such as temperatures and pressures. Using this information, device calculates 11

so-called "operating guides" and records them on the log sheet. These guides are fundamental process control information such as rates at which carbon burns and catalyst circulates. Every 24 hr., unit totalizes major process quantities.—*Fischer & Porter Co., Hatboro, Pa.*

Control, Gas-Cleaner

Improves efficiency, lowers cost for Cottrell systems. (291B)

... Automatic feedback control for Research-Cottrell electrostatic gas cleaners eliminates complexities, inefficiencies and cost of manually ad-

justing and controlling high voltage input. Unit is compact and self-contained.—*Research-Cottrell, Inc., Bound Brook, N. J.*

Control, Reaction

Controls oxidation-reduction processes. (291C)

... Convenient way to control oxidation-reduction processes is with O-R-P Cell which is sensitive to changes in relative concentration of specific chemical ingredients in a liquid medium.

Such changes affect the electrical potential between inert-metal electrode and a reference electrode. Cell operates at pressures to 35 psi.—*Fischer & Porter Co., Hatboro, Pa.*

Control, Temperature

Monitors and controls from 200 to 3,000 F. (291D)

... With Tipp-Tron controller you can prevent process and equipment temperatures from rising or falling past preset limits. Control accuracy is held within 2% of dial settings. Tipp-Tron comes in 10 ranges of temperature, calibrated both in Fahrenheit

and Centigrade. Either on-and-off or locking control action may be selected. When the locking control is selected, device must be reset manually each time the temperature reaches the control point.—*Tipp Mfg. Co., Tipp City, Ohio.*

Control, Temperature

Dual-range models. (291E)

... Two dual-range thermistor-actuated temperature controllers appreciably extend range and permit use of these instruments for sub-zero appli-

cations. Total coverage is from 100 to 600 F. for Model 56006 and from -100 to +150 F. for Model 56007.—*Fenwal, Inc., Ashland, Mass.*

Control Unit

Eliminates lag and hunting problems. (291F)

... Electronic and hydraulic components are combined in Swisstrol unit to control process accurately and rapidly. Changes in process conditions are detected with electronic rapidity

and transmitted instantly to hydraulic operator. Control unit is adaptable to any manufacturing process.—*Swiss Colony, Engineering Div., Monroe, Wis.*

Control, Unitized

All-electronic line in one universal case. (291G)

... With Unitized Autronic all-electronic control system, you can contain any combination of units within a universal mounting case which requires a single standard panel cutout of only

5 x 5 in. Controls incorporate such latest advances as printed circuits, miniature tubes, ruggedized components.—*Swartwout Co., Cleveland 12, Ohio.*

Controller

Holds process at optimal individual units. (291H)

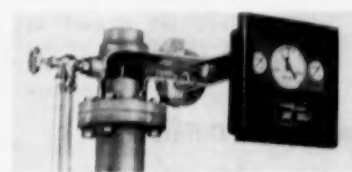
... Both process and cost can be controlled simultaneously by Optimal Controller. Instrument holds a system or process at a particular slope on its operating curve rather than at a fixed temperature or pressure. When uncontrolled variable in process causes

operating curve to shift, controller holds system in balance at same optimum slope, but on new operating curve. Thus, output of process remains an optimum from cost standpoint.—*Quarie Controllers, Canton, Mass.*

Controller, Level

Offers trouble-free operation. (291I)

... In New Flexotrol liquid level controller both bearings and knife edges have been eliminated. Result: Trouble-free operation on all services. Control action is interchangeable for proportional or differential gap response.—*Kieley & Mueller, Inc., Middletown, N. Y.*



Controller, Pyrometer

Controls temperature of individual units. (292A)

... With one multi-point, pyrometer controller you can control automatically the temperature of four to 10 separate units. Instrument combines

accuracy of null-balance potentiometer measuring circuit with speed of electronic control system.—*Thermo Electric Co., Inc., Saddle Brook, N. J.*

Controller, Temperature

Used with thermocouples. (292B)

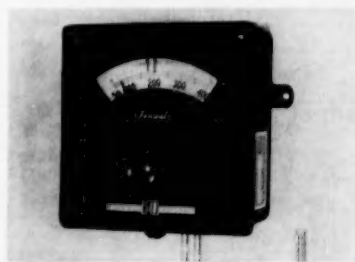
... Inexpensive, automatic indicating and controlling pyrometer has been developed for use with chromel-alumel, iron-constantan, and platinum-10%

rhodium thermocouples. Operating on photoelectric principle, controller eliminates moving parts and wear.—*Jelrus Co., New York 19, N. Y.*

Controller, Temperature

Wide choice of elements. (292C)

... Bulb-and-capillary indicating temperature controller features wide choice of interchangeable elements which permits you to tailor the control to the application. Instrument, accurate within 2 deg. F. under optimum conditions, is rugged, easy to read, convenient to adjust and service in the field. It's case-compensated for ambient temperatures between 50 and 100 F.; is dust proof and splash proof.—*Fenwal Inc., Ashland, Mass.*



Controller, Valve

All-electric, mounts on rotary valve stem. (292D)

... Valvetrol all-electric rotary valve controller provides remote or automatic operation of valves with proportional or on-off control. Controller incorporates built-in potentiometer

which may provide remote indication of valve position. Valvetrol can be mounted on valves sold by all leading manufacturers.—*Jordan Co., Milwaukee 9, Wis.*

Controllers, Electronic

Designed for easy interchangeability. (292E)

... Line of electronic controllers can be interchanged at panelboard in seconds, simply by pulling one unit out and plugging the other one in. Instruments allow changeover from re-

cording to indicating type, proportional action to proportional-plus-reset action, slow reset to fast reset.—*Manning, Maxwell & Moore, Inc., Stratford, Conn.*

Detector, Chlorine

Warns of 3 ppm. chlorine in atmosphere. (292F)

... Wherever chlorine gas concentration exceeds 3 ppm., chlorine detector operates electrically to warn of danger. By giving alarm at low level gas concentration, device assures counter-

action before 15 ppm. level is reached where throats become irritated. Unit is made for either wall or panel mounting.—*Wallace & Tiernan, Inc., Belleville 9, N. J.*

Detector, Gas

Warns when cleaning produces dangerous gases (292G)

... Drager gas detector reduces hazard from dangerous gases produced by interaction of chemical cleaners with residues in process vessels. Device works on same principle as H.S

detectors; warns of specific poisonous gases present in air samples drawn through a glass tube by bellows arrangement. Test is rapid and precise.—*Dragerwerk, Lubec, Germany.*

Detector, Gas-Leak

Applied from squeeze bottle. (292H)

... C-leak is liquid for detecting gas and air leaks in piping, tubing, cylinders, tanks, evaporators, condensers or any system that can be pressurized

for testing purposes. Cost is competitive with older methods of leak detection.—*A & H Engineering Co., Glendale 7, Calif.*

Flowmeter

Measuring element has no inherent pressure drop. (292I)

... Nucor Magnaflow line of electromagnetic flowmeters converts liquid velocity directly into an electric potential without inherent pressure drop and with high accuracy. Instantane-

ous response makes it ideal for control applications. Measures flow rates as low as 100 cc./min. and as high as 2,000 gpm.—*Nuclear Corp. of America, New York 1, N. Y.*

Flowmeter, Differential

Low cost, accurate. (292J)

... High-head differential pressure transmitters measure rate of flow of liquids and gases producing maximum

differentials from 100 to 1,200 in. of water.—*Bailey Meter Co., Cleveland 10, Ohio.*



M-S-A (LIRA) Infrared Analyzer (Model 200)

Low-cost deflection type unit for automatic, continuous, high speed, accurate analysis. Detects one component in a simple or complex mixture of gases or liquids. Unitized construction makes maintenance easy. All controls readily accessible on front panel. Write for details.



M-S-A Carbon Monoxide Analyzer

Single or multipoint cabinets designed as alarms or recorders are available for detecting or measuring low concentrations of carbon monoxide in air. Measurements are based upon measurement of heat of oxidation when sample is drawn through granular catalyst. Write for details.



M-S-A Combustible Gas Analyzer

Adaptable for use with any gas or vapor of which the explosive range, and molecular weight are known. Applications extend to all industries where combustible fluids are employed. Now available with remote filament heads specifically adapted to high temperature applications. Write for details.



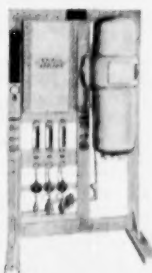
M-S-A Gas Thermoion

Simultaneously uses thermal conduction and thermal convection to provide simple, accurate, physical measurement of a single component in a complex mixture of gases without interference from other constituents. Can be used in many gas mixtures. Write for details.



M-S-A Oxygen Indicator

For precise, continuous measurement of oxygen content of inert and combustible atmospheres in chemical, metallurgical and petroleum industries. Provides means for improving safety of utility operations and controlling pipeline corrosion. Write for details.



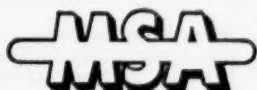
M-S-A Water Vapor Recorder

Detects trace moisture in air or gas streams. Operation is based on measurement of the heat energy exchanged when a gas is adsorbed on or desorbed from the surface of a solid adsorbent. Can be calibrated for various ranges from 0 to 10 parts per million up to several percent. Write for details.

This line-up of M-S-A® Gas Analyzers can help solve your process stream problems

M-S-A Gas Analyzers have earned a sound reputation for on-stream accuracy and dependability while solving a myriad of complex control problems. Chances are, some of the problems confronting you now have already been solved for others, with one of the basic units described above.

The experience and service we can bring into play may provide the breakthrough you're looking for in successful process stream control. Our thirty years in the business of gas analysis instrumentation are worthy of your consideration. Get in touch with an MSA Instrument Specialist for details, or write for helpful literature.



INSTRUMENT DIVISION

MINE SAFETY APPLIANCES COMPANY

Pittsburgh 8, Pennsylvania

At your service: 76 Branch Offices in the United States

Flowmeter, Ultrasonic

Measures without obstructing flow. (294A)

... Glennite meter, model UF-100, is straight-through flowmeter achieving accurate measurement by modification of ultrasonic beam. Since instrument

doesn't obstruct flow, pressure drop is eliminated, maintenance is easier, and greater accuracy is attained.—*Gulton Industries, Inc., Metuchen, N. J.*

Gage, Level

Indicates level magnetically in hazardous areas. (294B)

... Magnetically actuated level gage is recommended where glass gages can't be used, such as installations where explosion or fire may result if

any gas escapes. Also, magnetically actuated gage can indicate interface.—*Jerguson Gage & Valve Co., Somerville 45, Mass.*

Gage, Thickness

Measures thickness of non-magnetic films. (294C)

... Thickness gage measures, non-destructively, thickness of non-magnetic films or coatings backed by magnetic materials. Measurements are made from coated side of coated object. Operation of instrument de-

pends upon internal alnico magnet which provides flux to the feet. Variations in film thickness are measured in terms of changes in leakage flux by a gauss-meter-type movement.—*Gardner Laboratory, Inc., Bethesda, Md.*

Gage, Thickness

Provides continuous standardization. (294D)

... Sealed "source" emitting beta rays measures thicknesses to close limits in instrument which gives mass per unit area. It's used to measure and control

sheet thickness, basis weight, coatings. Null balance operation insures greater stability and accuracy.—*Isotope Products, Inc., Buffalo 7, N. Y.*

Gage, Vacuum

Has voltage regulator, temperature-compensated thermopile. (294E)

... Half scale on dial face of this gage is 15 microns, providing excellent readability for low micron measurements. Instrument is highly accurate throughout entire range of measurement. Improved design of gage tube, incor-

porating temperature-compensated noble-metal thermopile, gives greater sensitivity and accuracy in low micron range. Instrument operates on 115 v. a.c.—*Hastings-Raydist, Inc., Hampton, Va.*

Glasses, Sight

Sealed directly to metal. (294F)

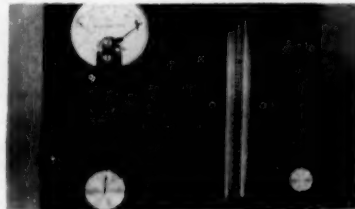
... In new manufacturing process sight glasses are hermetically sealed to metal. Elimination of solder and gaskets overcomes main weaknesses of

sight glasses. Windows are tamper proof, unaffected by aging or vibration, resistant to high pressures.—*Corning Glass Works, Corning, N. Y.*

Hygrometer

Sensitive model for panel mounting. (294G)

... Panel-mounted electrolytic hygrometer automatically and continuously measures water concentrations in vapor samples. Accuracy is within 5% in difficult 0-1,000 ppm. range at temperatures to 100 C. Instrument is valuable for controlling corrosion, product purity and process efficiency.—*Process Instruments Div., Beckman Instruments, Inc., Fullerton, Calif.*



Indicator, Oxygen

Measures traces. (294H)

... As little as 2 ppm. of oxygen in hydrogen or inert gases can be measured by super-sensitive indicator de-

spite presence of up to 3% carbon monoxide.—*Baker & Co., Instrument Div., East Newark, N. J.*

Indicator-Recorder

Read with ease from a distance. (294I)

... Large indicating scale and pointer have been incorporated into the standard Minicorder to provide easy reading of temperature or pressure from

a distance. Instrument resulting from combination of Minicorder, scale and pointer is called a Mindicorder.—*Dickson Co., Chicago 19, Ill.*

Indicator, Regulator

Warns when process temperature deviates. (294J)

... No. 11 indicating, self-operating regulator checks and controls industrial processes and hot-water systems. While regulator itself governs temperature automatically, front-mounted dial thermometer provides continuous

temperature readings of process under control. Because thermometer is mounted in front, regulator can be installed in tight spaces; there's less chance of damage to indicator.—*Powers Regulator Co., Skokie, Ill.*

Link, Thermocouple

Provides multiple connections. (295A)

... With Quik-Konnect Components, multiple thermocouples can be connected manually to an instrument. Components are easy to use and fool-proof. Installation time is cut 75% and easily lost small parts no longer need to be handled. Quik-Konnect

components consist of Fiberglass reinforced phenolic plastic plugs, jacks and phenolic-plastic multiple-jack panels with tube connectors and cable clamps for mounting.—*Minneapolis-Honeywell Regulator Co., Philadelphia 44, Pa.*

Load Cell, Electronic

Measures weight or force for low-cost industrial systems. (295B)

... Electronic load cell applied to industrial systems relies on magnetic air-gap transducer that measures deflection of steel bending member within cell. Cell can tolerate extreme overload up to 1,200% without affect-

ing calibration. Though measuring 1.6 in. tall for 10,000 lb. capacity unit, it has an output over 3 v. so that an amplifier isn't required.—*Ball Bros. Co., Inc., Controls Cells Div., Muncie, Ind.*

Meter, Flow

Positive displacement type for viscous fluids. (295C)

... VAF-Brooks flow meter is designed for hard-to-handle liquids such as bunker oils, still bottoms and asphalt. Meter is highly accurate, can operate

at elevated temperatures and pressures with high-viscosity fluids, either lubricating or non-lubricating.—*Brooks Rotameter Co., Lansdale, Pa.*

Meter, Flow

For high pressure. (295D)

... Flow meter for control of liquids and gases is rated at 15,000 psi. at 100 F. Three interchangeable stainless-steel flow tubes with variable

tapered orifices and floats permit up to 30 desired flow ranges from 0.1 ml. to 13 liters per min.—*C-Mar Corp., Manasquan, N. J.*

Meter pH

Pocket size. (295E)

... pH meter comes complete with batteries in a plastic case measuring 3 x 5½ x 2¼ in. Outer waterproof carrying case with shoulder strap con-

tains plastic tubes of KCl buffer solution. Meter has accuracy of 0.1 pH.—*Analytical Measurements, Inc., Chatham, N. J.*

Meter, Steam

Incorporates changes for better operation. (295F)

... Among some of the design changes announced for model SMDH Shunt-flo steam meter are: advanced-design cooling chamber equipped with external cooling fins to keep meter cool at

all times; meter body which accommodates concentric orifice for sizing meter. — *Builders-Providence, Inc., Div. of B-I-F Industries, Inc., Providence, R. I.*

Metering System

Provides automatic switch control at meter. (295G)

... Explosion-proof control system for liquid metering systems provides for automatic switch control of all pumps and quantity control valves right at the meter. On completion of

predetermined delivery, switch is thrown automatically to cut off liquid flow simultaneously at meter and at the pump.—*Meter & Valve Div., Rockwell Mfg. Co., Pittsburgh 8, Pa.*

Miniatures, Electronic

Monitor complete process. (295H)

... Line of miniature electronic recorders and indicators makes possible a complete graphic panel or console-type operation on a process. Dynamaster recorder looks like Metagra-

phic pneumatic recorder. Both instruments, offered in either potentiometer or a.c. bridge models, have plug-in design for full interchangeability.—*Bristol Co., Waterbury 20, Conn.*

Monitor, Flue-Gas

Determines excess air by measuring O₂ content. (295I)

... Flue-gas monitoring system analyzes O₂ content as a measure of excess air and adjusts fuel-air ratio automatically to maintain optimum com-

bustion. It can be used on power-plant boilers, process heaters, cement kilns, open-hearth furnaces.—*Leeds & Northrup Co., Philadelphia 44, Pa.*

Monitor, Moisture

Measures minute amounts of moisture in gases. (295J)

... As little as 1 ppm. of water in gaseous mixtures can be measured accurately by portable Type of 26-301 moisture monitor. Unit reads over full-scale range of 0 to 1,000 ppm. by

means of 5-step attenuator. Sample flows through at temperatures to 100 C. and pressures to 100 psig.—*Consolidated Electrodynamics Corp., Pasadena, Calif.*

FOR MORE INFORMATION on any item in this section, write its code number on one of the Reader Service postcards (inside back cover) and mail. It's fast and easy.

New Instruments & Controls

1957 INVENTORY

Monitor, Turbidity

Dual-beam unit. (296A)

... First of its type on the market, Turbistat instrument continuously monitors turbidity in fluids and measures suspensions as low as 0.05 ppm.

Color changes in process stream do not affect instrument readings.—*Baird Associates-Atomic Instrument Co., Cambridge 38, Mass.*

Operator, Handwheel

Mounts integrally on standard valve actuator. (296B)

... In event of air failure, Cono-Clutch hand operator makes possible immediate manual control of cylinder Conomotor power actuator. Device mounts integrally on standard Cono-

motor line and is said to be the only operator of its type which can be thrown instantly in and out of gear at any position of stem travel.—*Cono-flow Corp., Philadelphia 3, Pa.*

Positioner, Electric

Operates final elements in automatic control systems. (296C)

... Actionator electric motor operates final control elements such as rotary, slip-stem and butterfly valves, dampers. Four different models provide two-position, floating or proportioning control for rotary operation or for

slip-stem valves. Actionator's gear train provides choice of any one of six different timings: 7.5, 10, 15, 30, 60 or 120 sec.—*Minneapolis-Honeywell Regulator Co., Industrial Div., Philadelphia 44, Pa.*

Positioner, Remote

Costs less than existing automatic positioners. (296D)

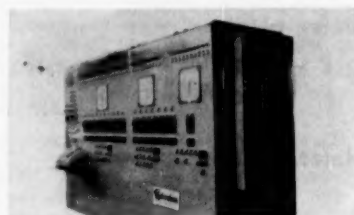
... Model AS positioner provides automatic positioning control for variety of industrial applications. Low-cost device is accurate within 0.5% with a repeatability of 0.25%. Model AS positioner depends on bridge circuitry.

Among uses: positioning of conveyors, dampers; remote instrumentation in conjunction with indicating instruments, controlling operation of automatic selection equipment.—*Wallson Associates, Ltd., Orange, N. J.*

Proportioning System

Includes control, recording for many feeders. (296E)

... Select-O-Weigh system includes automatic control and interlocking of complex proportioning system that has 43 feeders. System also provides automatic recording of complete formula information. Numerical code includes formula number, time, months and day of formulation, final cutoff point of each feeder.—*Richardson Scale Co., Clifton, N. J.*



Proportioning System

Keeps own accounting records of weighings. (296F)

... Fully automatic electronically controlled proportioning system automatically records formulas and weighings on a summary punch card by means of a recording device interlocked with panel action. New fea-

ture permits you to process billings, maintain inventory control and keep records of weighing and proportioning by processing punched cards through IBM business machine.—*Richardson Scale Co., Clifton, N. J.*

Psychrometer

Meets Weather Bureau specifications. (296G)

... Compared to widely used sling-type psychrometer, Psychron psychrometer is easier and safer to operate in close quarters, gives more precise aspiration rate, isn't affected by solar radiation, has built-in illumination for

the thermometer. Motor-driven portable unit was designed to meet rigid government specifications for use by the U. S. Weather Bureau.—*Friez Instrument Div., Bendix Aviation Corp., Baltimore 4, Md.*

Pyrometer

Checks surface temperatures. (296H)

... Type R-4200 wall-mounted pyrometer with flexible arm combines convenience of a portable instrument with protection of a wall-mounted device. Use of instrument enables manufacturer with a battery of ovens, to locate a surface instrument per-

manently at each station to check production temperatures. Instrument is available with a flexible arm and choice of ten thermocouples in standard F. ranges from 0-300 to 0-2,000.—*Illinois Testing Laboratories, Inc., Chicago 10, Ill.*

Pyrometer

Needle type. (296I)

... Just insert needle into any material and the internal temperature will be indicated on the dial of the Pyromajor pyrometer. Instrument

gives quick internal temperatures for many materials, including rubber and plastic.—*Epie, Inc., New York 38, N. Y.*

Refractometer, Process

Mounts directly on process stream for continuous monitoring.

(297A)

... Industrial process refractometer continuously measures difference in refractive index between a flowing liquid sample and a reference liquid. Variations in the streams can be detected in very short order and neces-

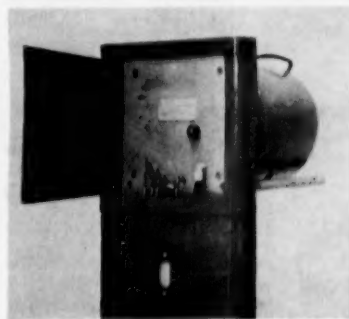
sary changes made to bring the product back to standard. Instrument is built in three models with ranges of limiting sensitivities covering 0.0001, 0.00001, 0.000002.—*Barnes Engineering Co., Stamford, Conn.*

Refractometer, Process

Controls blending and fractionating.

(297B)

... Improved process refractometer, Type 38-202, can monitor continuously the refractive index of liquid process streams under adverse environmental conditions. Designed for around-the-clock operation, instrument is housed in pressed-steel bell for Class I, Group C hazardous locations. Insulating barrier around entire optical measuring unit prevents interference from rapid ambient temperature changes. Because unit is compact, it requires only 8 sq. ft. of floor area.—*Consolidated Electrodynamics Corp., Pasadena, Calif.*

**Regulator, Flow**

Has operator for remote adjustment.

(297C)

... Kates flow-rate regulator can be operated either remotely and/or automatically. Unit is complete flow regulating system in itself. Action

is inherently faster and more stable than flow control systems including air-operated valves.—*W. A. Kates Co., Deerfield, Ill.*

Regulator, Temperature

Of stainless steel for chemical service.

(297D)

... Regulator 11061-R, developed mainly for use in chemical plants, withstands corrosive effects of certain fumes, gases, acids, chemicals.

Standard models of control have upper works entirely of stainless steel.—*Fulton Sylphon Div., Robertshaw-Fulton Controls Co., Knoxville, Tenn.*

Relay, Computing

Performs six arithmetic functions.

(297E)

... Model 56-1 universal pneumatic computing relay can be adjusted to add, subtract, multiply and divide. Measurements are received by the re-

lay as 3-15 psi. pneumatic signals; computer output to a recorder or controller is 3-15 psi. signal.—*Foxboro Co., Foxboro, Mass.*

Sampler, Cylinder

Checks purity of five compressed gas cylinders.

(297F)

... Large quantity sampling is quick and easy with automatic compressed gas cylinder sampling station designed to check purity of five cylinders at a time. When operated with argon purity instrument, with range

of 99.9-100%, it will sample each cylinder to an accuracy of 5 ppm. impurities. If all cylinders are acceptable, eight minutes is required to analyze five cylinders.—*Thermo Laboratories, Michigan City, Ind.*

Selector System

Controls filling of process and storage tanks.

(297G)

... Reduced costs are promised for controlling filling of storage and settling tanks with automatic ATS tank selector system. System is said to be

accurate, reliable, economical. It can handle up to 12 tanks.—*Mason-Neilan, Div. of Worthington Corp., Norwood, Mass.*

Sensor, Liquid-Level

Controls within 1/32 in. using ultrasonics.

(297H)

... Stable sensing of liquid level without interference from foam or clinging droplets is reported for simplified sensor that uses an ultrasonic probe. Unit can be used on virtually

all liquids at temperatures from -270 to +220 F. Sensor responds instantaneously and is safe when gaging hazardous liquids.—*Acoustica Associates, Inc., Glenwood Landing, N. Y.*

Shutoff and Alarm

Operates without sensing elements or electronics.

(297I)

... Safety shutoff and alarm for automatically controlled processes requires no sensing element or electronic circuitry. Device shuts down the process and sounds an alarm

when controller fails in the "on" period and sounds an alarm when there is an abnormal "off" period or fusing of the power contactor.—*Damol Corp., Philadelphia 10, Pa.*

New Instruments & Controls

1957 INVENTORY

✓ Code numbers for R.S. Postcard (inside back cover)

Signal, Overload

For trucks. (298A)

... Overload signal warns driver of industrial truck that truck load exceeds safe operating capacity of the

truck. Also, warns when load is dangerously unbalanced.—*Lamson Mobilift Corp., Syracuse 1, N. Y.*

Spectrometer, Mass

Analyzes precisely in plant or field. (298B)

... Inexpensive, portable mass spectrometer for analyzing small amounts of gaseous mixtures or liquids that can be vaporized has over-all mass range from 2 to 80 with resolving

power adequate for separation of adjacent peaks up to about mass 35. Instrument is suitable for bench, rack mounting.—*Consolidated Electrodynamics Corp., Pasadena, Calif.*

Spectrometers, Mass

Modified to meet needs for specific applications. (298C)

... Addition of equipment (automatic programmer, peak selector, piping and valves for nine sample lines) to Type 21-620 mass spectrometer permits multi-stream and multi-component analysis. Instrument is monitoring gases from oil wells to permit closer control of underground combustion of

residual oil reserves. Another modification of same mass spectrometer makes possible analysis of liquid mixtures of gasolines and chemicals which have insufficient vapor pressure at room temperature.—*Consolidated Electrodynamics Corp., Pasadena, Calif.*

Switch, Liquid-Level

Sensitive to missile fuel level. (298D)

... Liquid-level switch, using a beta source in its sensing element, is available for control of critically important fuel levels in supersonic aircraft and missiles. It's smaller, lighter and more durable than any similar device. Switch performs reliably and

accurately under extremes of temperature, vibration and shock. Absence of exposed electrical potential minimizes hazards which are due to fire and explosion.—*Aeronautical Div., Robertshaw-Fulton Controls Co., Anaheim, Calif.*

Switch, Pressure

For variety of controlled-pressure and limit-switch applications. (298E)

... Industrial-gas pressure switch satisfies Factory Mutual requirements for a safety cutoff switch on multiple-burner gas installations. It can also be used as a pressure controller for hazardous gases or as a differential pressure controller in non-hazardous

gases. All adjustments are inside case to avoid careless or accidental manipulation. Entire cover of switch is a window to permit noting position of the switch and scale.—*Minneapolis-Honeywell Regulator Co., Industrial Div., Philadelphia 44, Pa.*

Switch, Pressure

Holds system pressure within desired limits. (298F)

... Pressure switch can sense two different pressures in one system and actuate independent electrical circuits at any two desired points. It may be used to maintain system pressure where it's imperative to hold pres-

sure within range of predetermined values. Switch senses system pressure over range from 15 to 3,000 psi. for proof pressures from 3,000 to 7,000 psi.—*Barksdale Valves, Pressure Switch Div., Los Angeles 58, Calif.*

Thermostat

Stainless steel for corrosive service. (298G)

... Thermoswitch 18000-26 is fabricated entirely from 316 stainless steel for corrosive applications. Control temperatures are adjustable over

range of -100 to +400 F. and unit will control within 2 deg. F. in a well designed system.—*Fenwal, Inc., Ashland, Mass.*

Timer, Industrial

Continues running after power outage. (298H)

... Patented electrical instrument timing component keeps running when power fails or circuits short out. Timer's use is predicted in such applications as temperature, pressure

and vacuum recording devices; indicating and controlling instruments; heat treating and oven control.—*Industrial Timer Instruments Co., Chicago 2, Ill.*

Transmission System

Pneumatic input and output linked electrically. (298I)

... Industrial-instrument transmission system eliminates transmission lags. Pneumatic control signals are transmitted electrically over two-wire link. Output pneumatic signal at receiving end exactly duplicates input pneumatic signal. System has no lost motion, hysteresis, dead spots. It

eliminates need for long runs of air tubing. There are no electronic tubes, transistors or intermittent contacts so that life is unlimited. Transmitter and receiver are very similar in construction.—*Fielden Instrument Div., Robertshaw-Fulton Controls Co., Philadelphia 33, Pa.*

Transmitter, Flow

Offers low-cost check on previously unchecked flows. (299A)

... Sources of steam, water and air in your plant can be cost-accounted easily and economically with 200T fixed-range differential flow transmitter. It can make plant process control

pay increased dividends where more expensive equipment has not been recognized previously as economical. —*Taylor Instrument Cos., Rochester 1, N. Y.*

Transmitter, Speed

Measures rotation. (299B)

... Departing from conventional speed transmitting devices, type 16A pneumatic speed transmitter produces

a pneumatic output that is linearly proportional to rotational speed. —*Foxboro Co., Foxboro, Mass.*

Transmitters

Allow stepless changing of range. (299C)

... Republic's line of pressure and differential-pressure transmitters are especially valuable where operating ranges may change. Design of instruments is based on "null-balance-

vector" principle which permits greater compactness, reduces weight. —*Republic Flow Meters Co., Chicago 47, Ill.*

TV System

Channels gage reading to room. (299D)

... Closed-circuit TV system enables Monsanto's Power Dept. operators in Texas City to see a water-level gage that's three stories above the control room. System is part of new de-

mineralizer unit and boiler. TV circuit checks boiler water level despite interference which prevents use of mirrors. —*Radio Corp. of America, Camden, N. J.*

Vaporizer, Sample

Feeds controlled vapor to stream analyzers. (299E)

... Type 38-001 vaporizer-regulator assures vaporization at controlled pressure of liquid samples being fed into stream-type analyzers. It's used

with infrared analyzers, refractometers and mass spectrometers. —*Consolidated Electrodynamics Corp., Pasadena, Calif.*

Venturi, Fabricated

Light weight, low cost. (299F)

... Type PVF fabricated Venturi tube has price advantage and is available on relatively fast delivery compared with heavier cast-iron tubes. Entire inner formed section is of

stainless steel. Either carbon steel or stainless-clad steel pipe forms surrounding and supporting section. —*Burgess-Manning Co., Penn Instruments Div., Philadelphia 4, Pa.*

Viewer, Remote

Shows interior of consumable-arc furnaces. (299G)

... During production of titanium and other new materials, remote viewer enables operator to view operation with complete safety. Viewer fits over viewing port of consumable-electrode furnace. Operator can stand outside a concrete barrier and study

the electrode image on an 8-in. ground-glass screen through a safety glass window. Downward travel of electrode can be observed to maximum distance of 10 ft. —*American Optical Co., Special Products Group, Instrument Div., Buffalo 15, N. Y.*

Viscometer

Explosion proof. (299H)

... Brookfield viscometer is now available in explosion-proof construction. All models have been field tested

and approved by Underwriters' Laboratories. —*Brookfield Engineering Labs., Inc., Stoughton, Mass.*

About This Equipment Inventory . . .

CE's fourth annual inventory of new equipment and accessories lists only new or newsworthy items that have been selected by CE editors for publication in August 1956-August 1957 issues. All the items in this inventory have, therefore, been

carefully screened for their interest and value to chemical engineers in the chemical process industries. Emphasis is chiefly on equipment that can be used in commercial or large-scale processing and production units.

Literature Available

INSTRUMENTS & CONTROLS

Accessories, Instrument......Accessories for gages, dial thermometers and recorders described in bulletin 600 include attachments to protect internals against corrosives and pressure, tools, fittings.
300A United States Gauge.

Actuators, Plug Valve......Bulletins are available on a line of plug valve actuators now manufactured in valve sizes for 1 to 8-in. pipe. Units for 10 and 12-in. pipe sizes will be available soon.
300B Pantex Mfg. Corp.

Actuator, Valve......62-page catalog shows you how size and cost of hydraulic actuators for valves have been reduced successfully with new miniature line of hydraulic pumps, cylinders and pressure switches.
300C Oil Dyne, Inc.

Amplifiers......Gives specifications of 60 cycle and 400 cycle magnetic servo amplifiers. Contains application data and circuit diagrams. Extreme flexibility, latest circuitry, dual input. Bulletin 382.
300D Norden-Ketay Corp.

Analytical Instruments......16 p. catalog describes line of infrared and ultraviolet spectrophotometers, monochromators, flame photometers, vapor fractometers, accessories and components.
300E Perkin-Elmer Corp.

Analyzers, Carbon Monoxide......Continuous carbon monoxide analyzers described in 4-page folder detect accumulation of dangerous concentrations of gas in chemical plants, metallurgical plants, etc.
300F Mine Safety Appliances Co.

Analyzers, Gas......Applications, calibration, design, performance and specifications (mass range, resolution, sensitivity, stability, response time, noise, construction, etc.). Bulletin 488.
300G Beckman Instruments.

Analyzers, Gas......L&N Thermal Conductivity Gas Analyzers feature accuracy, sensitivity, stability, fast response, interchangeable cells, etc. Company gives details in Folder ND46-91(2).
300H Leeds & Northrup Co.

Analyzer, Gas......Based on the principle of measuring sound velocity in a gas, analyzer offers high degree of precision. Bulletin 175 gives diagrams and design features of this instrument.
300I National Instrument Labs.

Analyzers, Gas & Liquid......Electronic infra-red analyzer is designed to fill the need for a moderately-priced instrument for most continuous-flow chemical analysis problems. Bulletin 0705-2.
300J Mine Safety Appliances Co.

Analyzers, Infrared......M-S-A LIRA Model 200 infrared analyzer provides automatic, continuous, high-speed, accurate analysis for a single component in a simple or complex mixture of gases or liquids. Book.
300K Mine Safety Appliances Co.

Analyzers, Infrared......Brochure deals with Bichromator dispersive infrared plant instrument for measuring single components continuously. Outline of features and specifications, schematic diagram.
300L Perkin-Elmer Corp.

Analyzers, Moisture......Nuclear Magnetic Resonance (NMR) analyzer measures the total moisture content of the material being tested, with extreme speed and accuracy. Technical data available.
300M Schlumberger Well Surveying.

Analyzers, Oxygen......Beckman Oxygen Analyzers are available for time-saving, accurate measurements of oxygen in your process or laboratory operations. Company offers information in Data File.
300N Arnold O. Beckman.

Analyzers, Oxygen......Bulletin 1841 reports that the Type 38-301 oxygen analyzer detects and measures trace amounts of oxygen in process gas streams. Instrument is a colorimetric differential photometer.
300O Consolidated Electrodynamics.

Analyzers, Thermal Conductivity......Model 7C thermal conductivity type analyzer may be used to measure a number of process stream gases such as carbon dioxide, hydrogen, ammonia. Bulletin 119.
300P Arnold O. Beckman.

Analyzers, Thermal Conductivity......Principle, construction, operation and features of Condu-Therm analyzer and Acatron Electronic recorder in 12-page catalog. Special section on gas sampling systems.
300Q Hays Corp.

Analyzers, Vibration......Where you can use models 300 and 400 to measure, troubleshoot and balance out vibration is pointed out in a leaflet that also details component features and specifications.
300R Int'l. Research & Devel.

Analyzers, Ultraviolet......For continuous monitoring and control of petroleum, petrochemical and allied processes, the Type 38-401 ultraviolet analyzer is rugged and stable reports Bulletin 1842.
300S Consolidated Electrodynamics.

Annunciator Systems......32 p. catalog describes the complete line of standard, integrated Panalarm Annunciator Systems for industry. Company makes full details available in Catalog 100B.
300T Panellit, Inc.

Annunciator System......20-page bulletin "Scam Self-Policing Annunciator Systems for Industry" tells how these systems continuously supervise control systems and machinery and conserve manpower.
300U Scam Instrument Corp.

Annunciators......Catalog of self-policing visual and audible annunciator systems. Gives selection data, wiring for alarms, sample alarm sequences, and other engineering and installation data.
300V Scam Instrument Corp.

Automation Systems......Company publication "Alden Systems Illustrated News" carries timely information and application stories on automation, cost-cutting methods and work simplification.
300W Alden Systems Co.

Backstand, Paper......Product Bulletin EG71 tells how automatic edge position control can be obtained on film, paper, foil, etc., by replacing the backstand with Model 360 light duty backstand.
300X Askania Regulator Co.

Balance, Gas Density......For continuous, accurate measurement of process gas streams. Features: wide ranges, rapid response, sensitivity and accuracy, corrosion resistant, etc. See Data File 22X-57.
300Y Arnold O. Beckman Inc.

Bridges, Impedance......Company offers information on their Impedance Bridge, Type LB-50 for making rapid, accurate measurements of all types of resistance, capacitance, etc. Catalog L2005.
300Z Radio Corp. of America.

Bridges, Impedance......Company describes their Precision Impedance Bridge, Type LB-52 for measurement of resistance, capacity, inductance, dissipation factor and "Q". Catalog L2010.
300AA Radio Corp. of America.

Cable......Cost-saving Armortube Cable is offered in a full family of sizes and types, aluminum or copper tubing, 1/4, 3/8, 1/2-inch OD types. For information and specifications, see Price List G91-8.
300BB Bailey Meter Co.

Calibration Consoles, Thermocouple......Complete equipment package for industries requiring frequent calibrations to maintain temperature measuring accuracy. Details in engineering data EDS-23.
300CC Thermo Electric Co.

Calibrator, Pressure......How a primary pressure standard, type 6-201, operates as an air dead-weight tester to calibrate any pressure-measuring device is detailed in Bulletin 1581.
300DD Consolidated Electrodynamics.

Chromatograph......Operates with either adsorption, gas-liquid partition, or reaction columns. Micro-sampling makes instrument practical for all types of laboratories. See Bulletin CEC 1831-X17.
300EE Consolidated Electrodynamics.

Chromograph......Model 1111A Chromograph analytical instrument described in 4-page bulletin is a mobilized unitized instrument based on Shell Development Co. experience analyzing gases.
300FF Hallikainen Instruments.

Chromatographs, Gas......Bulletin describes an instrument employing the rapid technique of gas chromatography. Includes description of operation, applications and performance curves.
300GG Beckman Instruments.

Chromatography Instruments......Chromatograph will be shown at I. S. A. show in Cleveland; described in Folder ND46-91(4) as a vital advance in gas chromatography instrumentation.
300HH Leeds & Northrup Co.

- Cocks, Service.**.....Line of service cocks, meter & air cocks for moderate-pressure services, is described in 12 p. bulletin. Main emphasis given to "1092" tamperproof service cock. Bulletin V-605.
301A Rockwell Mfg. Co.
- Comparators.**.....Fully illustrated, 100 p. handbook tells how to use pH and chlorine control for water supplies, process solutions, production processes in 34 basic industries. Covers line of comparators.
301B W. A. Taylor & Co.
- Computers.**.....Catalog describes systems for data handling & series of analog computers; frequency meters; decimal counting units; time interval meters, etc. Request Catalog C-703.
301C Beckman Instruments.
- Computer.**.....A 12-page brochure describes the completely transistorized computer Transac type S-2000. Using only air cooling and negligible power this light-weight system cuts installation costs.
301D Philco Corp.
- Computers, Analog.**.....Booklet answers questions on automation and development of control systems. Defines types of computers and summarizes applications for each. Lists virtues and limitations.
301E GPS Instrument Co.
- Computers, Digital.**.....Bulletin AB116 describes G-15D general purpose digital computer and accessory digital differential analyzer. Also covers programming techniques and input-output equipment.
301F Bendix Aviation Corp.
- Computers, Digital.**.....E101 small electronic digital computer solves problems between the scope of desk calculators and costly "electronic brains", saves technical manhours. Request booklet.
301G ElectroData Div.
- Computers, Pocket.**.....Pocket computer is described in booklet "Fascination in Numbers." Device not only does ordinary slide rule computations but also solves equations with variables and constant.
301H Graham Transmissions, Inc.
- Control, Edge Position.**.....Handles any web of rubber at any speed; powerful; dependable; easy to maintain; non-clogging; non-contact position sensing of the rubber edge. Bulletin No. 30.1.
301I Askania Regulator Co.
- Control Elements, Static.**.....8 p. bulletin defines static control, lists advantages, and describes components of General Electric's general-purpose static control system. Bulletin GEA-6578.
301J General Electric Co.
- Control Equipment.**.....12 p. booklet describes power plant control equipment. Reviews in detail, combustion and boiler feed water control, pressure reducing, etc. Booklet 1022-A.
301K Blaw-Knox Co.
- Control, Oxidation-Reduction.**.....Oxidation-reduction processes can be controlled accurately and conveniently with the O-R-P cell described in a bulletin now available from the manufacturer.
301L Fischer & Porter Co.
- Control, Pneumatic.**.....Standard and optional features of Speedomax G pneumatic controllers are covered in 12-page folder ND4(9). Block diagram shows how system works and details are illustrated.
301M Leeds & Northrup Co.
- Control System.**.....Economical system controls operation of pumps, valves, gates, etc. from central control point. Details given in 12 p. illustrated color bulletin 240-p2A. Request a copy.
301N Builders-Providence Inc.
- Control Systems.**.....Daystrom is compiling a file of new applications of control systems and papers on various parts of systems, both industrial and military, with periodic additions.
301O Daystrom Inc.
- Control Systems.**.....ElectroSyn system described in technical bulletin B257 is a non-electronic signal generator system that measures, indicates, transmits and controls many process variables.
301P Norwood Controls.
- Control Systems.**.....Taylor Trans-Scan-Log Control System is an evolution, interlocking scanning and logging with process control to put complete information before operator. Bul. 98268.
301Q Taylor Instrument Cos.
- Control Systems.**.....16 p. booklet with photographs, drawings, and circuit diagrams discusses what Cypak is, how it works, and how Cypak elements process information. Booklet B-6738.
301R Westinghouse Elec. Corp.
- Control Systems, Batch.**.....Catalog describes batch control systems. These offer simple means for automatically adding a predetermined volume of fluid to a batch process. Catalog 91-109.
301S Fischer & Porter Co.
- Control Systems, Dynamic.**.....Bulletin G-102 describes development in dynamic system control—one or more variables. Emphasis on aeronautical testing; diagrams show general industrial use.
301T CDC Control Services.
- Control Systems, pH.**.....Continuous pH control systems protect process cooling towers. Careful analysis for each individual tower is provided. Request Data Sheet 700(1) and questionnaire.
301U Leeds & Northrup Co.
- Control Systems, pH.**.....Data sheet discusses L&N pH Control System—electrode assembly, Speedomax recorder, Control Unit, Valve Drive. Complete details in Process Data Sheet 700(2).
301V Leeds & Northrup Co.
- Control Systems, Temperature.**.....Several forms of complete control systems available as stock items or custom built are detailed in Bulletin CS. Systems come fully wired and equipped.
301W West Instrument Corp.
- Controllers.**.....Features the M/58 Controllers revolutionary floating disc system—the exclusive design development that gives M/58 Control its unique versatility, precision, stability. Request Bulletin 13-19.
301X Foxboro Co.
- Controllers.**.....Bulletin 5013 shows the basic advantages of the original Nullmatic controllers and M/P Control Stations. It also includes a number of improvements which have been added. Complete line.
301Y Moore Products Co.
- Controllers.**.....Taylor makes available a data sheet discussing the separation of components in a batch distillation column in the shortest time at the lowest possible cost. Data Sheet 11.
301Z Taylor Instrument Cos.
- Controller, Concentration.**.....Detergent concentration is constantly controlled over a narrow range by a unique controller using neither vacuum tubes nor transistor circuitry. TD 1245.
301AA U. S. I. Chemicals Co.
- Controller, Draft.**.....For the first time adjustable proportional band is available in draft controllers for commercial and small industrial plants according to a 4-page bulletin just released.
301BB Cleveland Fuel Equip. Co.
- Controllers, Electronic.**.....'American-Microsen' Series C100 electronic controllers can be interchanged at the panelboard in seconds. Better control, simplified servicing. Bul. RC100.
301CC Manning, Maxwell & Moore.
- Controllers, Electronic Contact.**.....Changing resistor-capacitor can give single point or differential control; fully adjustable, self-locking differential between high and low contacts. Bul. 98265.
301DD Taylor Instrument Co.
- Controllers, Electro-Pneumatic.**.....Bulletin describes electro-pneumatic controller used for measurement and control of current to AC motors or other AC circuits. Specification Sheet GE-500.
301EE Hagan Corp.
- Controllers, Flow.**.....Foxboro M/59 Consotrol Controller is unsurpassed in performance by any other flow controller. It is indifferent to weather conditions. For details, see Bulletin 470.
301FF Foxboro Co.
- Controllers, Indicating.**.....Type 51 indicating controller is an air operated, mercury actuated proportional temperature controller. Temperature ranges from -40°F to 1000°F. Bulletin No. 978.
301GG A. W. Cash Co.
- Controller, Indicating Pneumatic.**.....Compact, moderately-priced indicating pneumatic control instruments described in Catalog C(600/700) cover temperatures from 0 to 1,000 F.
301HH Minneapolis-Honeywell.
- Controllers, Level.**.....Bulletin describes pneumatic level controller "Level-Trol." Includes principle of operation of displacement type float and illustrated construction. Request your Bulletin F-4.
301II Fisher Governor Co.
- Controllers, Level.**.....Displacement-type liquid level controller eliminates both bearings and knife edges and provides extremely trouble-free controller for all services. Details in Bulletin 456-1.
301JJ Kieley & Mueller.

New Instruments & Controls

Literature Available

Controller, Mercury-Actuated-
Controls, Temperature

Controller, Mercury-Actuated......According to bulletin, a mercury-actuated, air-operated indicating temperature controller can be changed from direct to reverse acting without tools.
302A H. O. Trerice Co.

Controllers, Non-Indicating......Bulletin describes the Wheelco 150 Series Non-Indicating Controllers, potentiometer type units for control applications in batch process work. Bulletin P-7298-1.
302B Barber-Colman Co.

Controllers, Pneumatic......Bristol Series 500 models for control of temperature, pressure, vacuum, draft, absolute pressure, liquid level, flow, humidity, density, pH, and other variables. Bulletin A130.
302C Bristol Co.

Controllers, Pneumatic......Bristol's Series 500 controllers available for automatic control of temperature, pressure, vacuum, draft, absolute pressure, liquid level, humidity, pH value, etc. Data.
302D Bristol Co.

Controllers, Pneumatic......17 p. Bulletin 5013 contains application and operating data on a line of controllers which operate entirely on a balance of air pressures. Generously illustrated.
302E Moore Products Co.

Controllers, Potentiometer......Series 150 non-indicating potentiometer controller described in Bulletin P-7298 is designed for control applications encountered in batch processes.
302F Barber-Colman Co.

Controllers, Pressure......Company offers information on the Norwalk Pressure Controller, including recommended uses, principles of operation, table of dimensions, etc. Bulletin No. 5000.
302G Norwalk Valve Co.

Controller, Pressure......A new pressure controller has snap action, pressure transmitter, remote set adjustment, and can be changed from direct to reverse action. Bul. D-4130.
56-7 *Fisher Governor Co.

Controllers & Recorders......Series 4000 Thermotrols for indicating, controlling or recording service have operating ranges of from -40 to 1000 degrees F. Mercury-actuated. Bulletin P-8042.
302I Barber-Colman Co.

Controllers, Recording......Type 57 recording controller air operated temperature controller with mercury, vapor, gas or organic liquid actuation. Temperature from -350°F. to 1200°F. Bul. 980.
302J A. W. Cash Co.

Controllers, Pyrometer......Multi-Point, Pyrometer Controller provides—in one instrument—automatic temperature control for up to ten separate process units. Company gives information in Bul. EDS-25-E.
302K Thermo Electric Co.

Controller, Temperature......Leaflet reports that precision temperature controller for laboratory and pilot plant controls within ± 0.001 C. with ranges from -100 C. to +500 C. with great reliability.
302L Bayley Instrument Co.

Controllers, Temperature......Offers data on Series 540 indicating temperature controller; uniform sensitivity and close accuracy make it ideal for kilns, ovens, liquid baths, baking ovens. Catalog No. 500.
302M Fenwal, Inc.

Controllers, Temperature......Series of indicating temperature controllers offer high accuracy, are rugged, easy to read and unusually convenient to adjust and service in the field. Details.
302N Fenwal, Inc.

Controllers, Temperature......Series 53000 thermostat-actuated temperature controller is designed as an individual unit which is plugged into a separate power supply chassis. Bulletin MC-133.
302O Fenwal, Inc.

Controllers, Temperature......Brochure gives complete specifications on series of bulb-and-capillary indicating temperature controllers. Applications: rubber molding, process coolers, etc. Bul. MC-139.
302P Fenwal, Inc.

Controllers, Temperature......These temperature controls are simple, inexpensive, effective. Suitable for about 85% of your jobs—all but those calling for elaborate, costly control. Details.
302Q Sarco Co.

Controllers, Temperature......Sarco temperature controllers consist of a thermostat with capillary tubing and a valve. Self-powered and operated by liquid expansion. Request Bulletin 620-2.
129a *Sarco Co.

Controllers, Temperature......Simple self-powered automatic temperature controller with diaphragm-operated, pilot-controlled valve. For intermittent service, packless. Request Bulletin 625-B.
129c *Sarco Co.

Controllers, Temperature......Simple, electric-indicating automatic temperature controller is adjustable, with a large, easy-to-read scale showing actual and set temperatures. Bul. 1025-B.
129d *Sarco Co.

Controllers, Temperature, Electronic......Describes the Honeywell Model 077 electronic temperature controller, a non-indicating device which operates on balanced bridge principle. Spec. Sheet S1010-1.
302U Minneapolis-Honeywell.

Controls......Advanced electrical design of Allis-Chalmers Size 4, 5 and 6 control incorporates a modern principle of arc interruption for low voltage, high horsepower applications. Bulletin 14B8615.
302V Allis-Chalmers Mfg. Co.

Controls......Annual equipment catalog lists coordinated group of instruments and controls that cover most aspects of measuring and controlling forces of flow, temperature, pressure, level, combustion.
302W Energy Control Co., Inc.

Controls......Bulletin covers electrical remote positioning controls for push button and automatic operation. Shaft mounted control gearmotor for valves and variable speed drives. Bulletin J-100.
302X Jordan Co.

Control, Combustion......Catalog covers line of automatic controls and instruments for the combustion industry. First time complete standardized line of this type catalogued under one cover.
302Y General Controls Co.

Controls, Cooling......Simple, compact automatic thermostatic valve eliminates overcooling and undercooling, saves water. Self-powered, fully modulating. Send for Bulletin 710-B now.
129b *Sarco Co.

Controls, Electric......Automatic "package" controls are discussed in a 16-page catalog AC-2. They are used for applications where a chemical or mechanical function can be measured electrically.
302AA Tipp-Tronic, Inc.

Controls, Electromagnetic......Seven catalogs have been issued on electromagnetic controls. They cover automatic transfer switches, remote control switches, contactors, relays, solenoids, complete line.
302BB Automatic Switch Co.

Controls, Furnace & Oven......Condensed Catalog & Price List introduces Electronik Special Class 14 line of Strip Chart, Circular Chart & Circular & Price List B-43-1.
302CC Minneapolis-Honeywell.

Controls, Furnace Temperature......Publication GER-1206 discusses temperature control systems thermocouples and control instruments, control elements and systems for heat treating furnaces.
302DD General Electric Co.

Controls, Level......Electromagnetic level control—Type 10CB4—for the control of all electrically conductive liquids in the chemical, waterworks, food processing, dairy and sewage fields. Bul. PF 544a.
302EE Electronics Corp. of America.

Controls, Liquid and Gas......Listing of all major Simplex equipment for measurement and control of liquids and gases. Booklet of 36 pages is a major revision of earlier volume produced in 1953.
302FF Simplex Valve & Meter Co.

Controls, Liquid Level......Literature describes relays and starters, automatic starter and relay combinations, multiple pump controls, special controls and panels. Information in product catalog.
302GG B/W Controller Corp.

Controls, Liquid Level......Series 2800 for use as high and low limit switches, to sound alarms, flash signal lights, start or stop fluid transfer pumps, operate control valves. Request Bulletin P-2800.
302HH Fisher Governor Co.

Controls, Liquid Level......Standard models can be easily adapted to meet any special requirements for pressure, temperature or corrosive liquids, and usually at little extra cost. Catalog data.
302II Magnetrol, Inc.

* From advertisement, this issue

1957 INVENTORY

Controls, Modulating....Fultrol Thermostatic Pilot Controller—a simple compact unit that enables you to control temperatures up to 600°F. with proportional accuracy at on-off cost. Cat. 10-28JC.
303A Fulton Sylphon Div.

Controls, Moisture....Technical data sheet outlines an improved method of moisture control in natural gas streams. Method will improve system efficiency. Request copy of Data Sheet EH-67-0.
303B Beckman Instruments.

Controls, Packaged....How valves can be controlled at lower cost is told in Bulletin 982 "Series 300 Packaged Control System." Ideal for any application that needs positioning, indication and remote control.
303C A. W. Cash Co.

Controls, Pneumatic....More than 10 pages of general automatic control theory are included in the 44-page Bulletin, A130, on Series 500 pneumatic recording and indicating controllers. Request a copy.
303D Bristol Co.

Controls, Power Plant....Booklet 1022A reviews combustion and boiler feed water control, pressure reducing, desuperheating and automatic soot blowing. Equipment in package of individual units.
303E Blaw-Knox Co.

Controls, Pressure....Three bulletin pages cover pressure controls—Type H5 in Bulletin 5-5; Type J7 in Bulletin 5-7 and Type J40 in Bulletin 5-9. Cover specification policy, purpose, switch ratings, etc.
303F United Elec. Controls Co.

Controls, Pressure-Vacuum....Four bulletin pages cover pressure-vacuum controls—Types G9, H9, J10 in Bulletin 5-1; Type H12 in Bulletin 5-2; Type J6 in Bulletin 5-3 and Type J96 in Bulletin 5-4.
303G United Elec. Controls Co.

Controls, Temperature....Model L-1S control in Bulletin 106 is used for liquids or gases up to 1,000 F. Discusses differential expansion operation, specification of ranges, tube sizes and accuracy.
303H Burling Instrument Co.

Controls, Temperature....Complete Thermoswitch line of temperature controls in catalog MC-135. Physical specifications, performance data, temperature ranges, modifications and special features.
303I Fenwal, Inc.

Controls, Temperature....Features: cuts initial control costs; costly production stoppages; control maintenance costs. Controls for gas, liquids and solids in —30°F. to 1200°F. ranges. Condensed Catalog.
303J Partlow Corp.

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Mechanical and Electronic Products Department
THE QUAKER OATS COMPANY
205 Water Street Akron 8, Ohio

New Instruments & Controls

1957 INVENTORY

Literature Available

Controls, Temperature—
Generators, Signal

Controls, Temperature.....Model HL 15-10 indicating high temperature limit control is a fast-acting, precision limit control for protecting processing operations. Details in Bulletin No. 311.
304A Partlow Corp.

Controls, Temperature.....Type N Hydroguard, a newly-designed water temperature control, provides greater compactness and accuracy than previously available. For information, Bulletin 362.
304B Powers Regulator Co.

Controls, Temperature.....Model H2 direct-acting temperature control keeps equipment below preset temperature limits, according to Bulletin RT-809. Mechanism and installation fully illustrated.
304C Robertshaw Fulton Controls.

Controls, Temperature.....Bulletin 620 on Self-powered Temperature Controls, Bulletin 710 on Self-powered Cooling Controls, Bulletin 1025 on Electric Indicating Temperature Controls.
304D Sarco Co.

Controls, Temperature.....Explosion-proof automatic temperature control, Type D68, has a multiple-turn, micrometer type adjustment. Company offers full engineering data in Bulletin 3-1.
304E United Electric Controls.

Controls, Temperature.....Type E98 automatic temperature control is sensitive, automatic, with external, calibrated temperature adjustments made by single-turn knob and pointer. Bulletin 3-5.
304F United Electric Controls.

Controls, Temperature.....16 p. catalog presents company's line of standard local mounted temperature controls. Includes theory, features, general specifications, etc. Request Catalog Section 100.
304G United Elec. Controls Co.

Controls, Temperature.....17 p. catalog presents company's line of remote bulb temperature controls for industrial, aircraft, marine, special purpose. Includes features, specifications, etc. Catalog Sec. 200.
304H United Elec. Controls Co.

Controls, Temperature.....Type E27A remote bulb temperature control contains two switches and, in many applications, may be used in place of two separate single-switch controls. Information.
304I United Elec. Controls Co.

* From advertisement, this issue

→ Want more information on any of these items? Just write its code number on one of the postcards inside the back cover, then mail it to us. It's that easy now.

Controls, Temperature, Pressure.....More than 34 basic types of industrial temperature and pressure controls are described in an industrial 96-page book. Devices control processes, heating, cooling, etc.
304J Powers Regulating Co.

Controls, Thermal.....Catalog gives details and product listings on Thermoswitch Thermal Controls, including midjet and miniature versions of these units and snap-action controls. Catalog 500.
304K Fenwal Inc.

Controls, Valve.....Time, labor & money can be saved by opening & closing valves with LimiTorque "Press the button." There's a type & size for every valve operating need. Catalog L-550.
304L Phila. Gear Works.

Counters, Electric.....Up to 200 counts per min. are recorded by an electric counter described in Technical Reference 56-C. Device counts packages or objects that move past check point.
304M Richardson Scale Co.

Counters, Neutron.....Illustrated bulletin, Vol. 4, No. 2 of the RCL Counter, describes two new thermal neutron counters and company's new 1024-Channel Neutron Time-of-Flight Analyzer.
304N Radiation Counter Labs.

Converters, Differential.....Details available on how differential converters make possible tighter control in your most critical applications. For further information, request Bulletin 2290-1.
304O Minneapolis-Honeywell.

Data Systems.....Reprint R-98 entitled "Increased Reliability of Industrial Data Systems" traces the development of the industrial data system and forecasts its future role in closed-loop systems.
304P Beckman Instruments.

Detection Equipment, Gas.....Specification sheet describes J-W Models E and EE, Combustible Gas Detection Equipment, and Sample Drawing Accessory. Gives operational and construction data.
304Q Johnson-Williams.

Detectors, Chlorine.....Solvay Chlorine Detector monitors a continuous controlled sample of air, warning when chlorine concentrations in the air exceed 3 p.p.m. Information available.
304R Wallace & Tiernan.

Detector, Fire.....In a 4-page brochure, you'll find how the rate-compensation principle allows Detect-A-Fire units to actuate at selected protection level regardless of temperature change rate.
304S Fenwal, Inc.

Detector Kits, Vapor.....A small, compact and practical detector kit rapidly determines low concentration of vapors of toluene diisocyanate and toluene diisocyanate urea. TD 1270.
304T U. S. Industrial Chem. Co.

Detectors, Leak.....Leak detector features; simple to operate; uses inert helium as detecting agent; audible and visible leak indications; easy maintenance; sturdy, stable AC amplifier. Bulletin 483.
304U Beckman Instruments.

Detector, Leak.....Improved detector—traces one part of helium in two million parts of air—announced by G. E. Simplified construction. Details given in bulletin GEC-336B.
304V General Electric Co.

Detectors, Malfunction.....Details on how vibration monitors detect malfunctions in rotating equipment and how the devices are installed and adjusted. For details, request Bulletin 500-1A.
304W Beta Corp.

Detectors, Metal.....No tramp metal can pass through the search coil without setting off an alarm or stopping the belt. Bulletin 1901 on Universal Series (tramp iron), Bulletin B-1920-A on electronic.
437c *Dings Magnetic Separator.

Detector, Methane.....Bulletin 0809-4 describes portable M-S-A type W-8 methane detector, which can quickly and accurately determine the methane content of mine air. It is extremely sensitive, easy to operate.
304X Mine Safety Appliances Co.

Detector, TDI.....A portable detector kit for low concentrations of Toluene diisocyanate and TDI-urea vapors in air, especially in plants making polyurethanes, is described in Bulletin 0811-4.
304Y Mine Safety Appliances Co.

Detector, Vibration.....Bulletin Entitled "Optron Displacement Follower" discusses an optical device that measures displacement and vibration regardless of size, shape or composition of material.
304Z Optron Corp.

Diffraction, X-Ray.....Brochure discusses basic theory definitions, analytical advantages and applications in metallurgy, chemistry, mineralogy, physiology, pathology, etc. Pub. 7A-3690.
304AA General Electric Co.

Dryer, Instrument Air.....Full details, including installation and operating instructions, are given in 4-page Catalog 3150 on the King instrument air dryer. Unit removes moisture from compressed gases.
304BB King Engineering Corp.

Electrodes, pH.....Complete information about L&N industrial process pH electrodes and their housings can be obtained from 4-page Data Sheet N-S5(2). Engineering features ordering instructions.
304CC Leeds & Northrup Co.

Flowmeter.....Catalog sheet RC-1 relates how the vortex-velocity principle of flow measurement has been designed into a compact liquid flowmeter that is self-contained and reads from 20 to 220 gpm.
304DD Rotron Controls Corp.

Flowmetering Systems, Electronic.....Potter Flowmetering Systems are highly accurate throughout a wide range of temperature, pressure, density and viscosity conditions. Write for Bulletin CE-6.
304EE Potter Aeronautical Corp.

Flowmeters.....Series 1700 Flowrator meters in more than 20 materials with stainless steel enclosures, neoprene backed up to 200 gpm of water, 400 scfm air. Request Cat. 10-A-25.
304FF Fischer & Porter Co.

- Flowmeters.**.....Company has prepared technical briefs on all four basic types of flowmeters, describing operating principles and advantages of each. Also selection and cost comparator charts.
305A Fischer & Porter Co.
- Flowmeters.**.....4 p. catalog describes function, construction & operation of Laub Electro-Caloric Flowmeter. Lists advantages of this instrument, mechanical & electrical specifications.
305B Industrial Development Labs.
- Fractometers, Vapor.**.....16 p. brochure discusses the features and specifications of the Model 154-B Vapor Fractometer. Examples of trace analyses possible with it. Request your copy.
305C Perkin-Elmer Corp.
- Gages.**.....For pressure, vacuum or compound service. No gears or teeth to wear out. Cam wiping action keeps contact points clean and smooth. Complete information in Catalog G-2.
305D Helicoid Gage Div.
- Gages.**.....Line of small-size gages feature: 5 inch illuminated scales; independent, interchangeable units; multiple or individual mounting; easily mounted; pointer motion reversible. Bulletin V5.
305E Republic Flow Meters Co.
- Gages.**.....U. S. Gauge Division offers catalogs of Supergauge, Solfrunt (Solid Front) Gauge for maximum safety, Diaphragm Receiver Gauge and Pressure Pilot, all designed for optimum process efficiency.
305F U. S. Gauge Div.
- Gages.**.....With proper application, Supergauge will last a lifetime. Supergauges available in 4 1/4" and 8 1/4" sizes. For information on case styles, materials of construction, etc., request Publication 1819.
305G U. S. Gauge Div.
- Gages, Force.**.....Series of force gages for accurate measurement of dynamic forces in any system or structure. Models 2103 & 2104 provide outputs of approx. 5 volts full scale. Bulletin 801-241.
305H Endevo Corp.
- Gages, Heated.**.....Complete line of heated gages has models to meet your specific problems in handling heavy or viscous liquids. Heated by steam or electricity. Jerguson Heated Gage Catalog.
305I Jerguson Gage & Valve Co.
- Gages, High Pressure.**.....Strahman high pressure gages are used in refineries and chemical plants throughout the world. Company makes information available in catalog. Request your copy.
305J Strahman Valves.
- Gages, Lined.**.....Reflex or transparent gages lined with natural and synthetic rubbers, lead, and other materials are ideal where concentration of liquids requires special linings. Drawing GD-431.
305K Jerguson Gage & Valve Co.
- Gages, Liquid Level.**.....Safety feature is an illuminated scale which starts flashing red if boiler water level gets too low or too high, flashes until situation is corrected. Bulletin.
305L Jerguson Gage & Valve Co.
- Gages, Liquid Level.**.....Truscale remote reading liquid level gages are inclined gages for use where the gages have to be mounted high or low on the instrument panel, or at other points. Bul. 291.
305M Jerguson Gage & Valve Co.
- Gages, Liquid Level.**.....Completely illustrated 76 p. reference describes the entire line of Penberthy liquid level and water gages and also indicates their points of superiority. Catalog 35.
305N Penberthy Mfg. Co.
- Gages, Liquid Level.**.....Presents valuable data on liquid level gages: reflex; thru vision; tubular. Standard equipment in leading refineries and industrial plants all over the world. Request Catalog.
305O Strahman Valves.
- Gages, Magnetic.**.....Company's new magnetic gage makes possible the safe and accurate measurement of liquid levels in installations where other types of gages cannot be used. Engineering data unit.
30-I *Jerguson Gage & Valve.
- Gages, Pressure.**.....Complete Helicoid line of pressure gages is graphically described and illustrated in 32-page catalog G-52. Utmost precision and enduring accuracy is reported under severe conditions.
305Q American Chain & Cable Co.
- Gages, Pressure & Vacuum.**.....Company gives details available on its dial indicating and recording pressure and vacuum gages. SG safety gage feature affords safety in front and back. Bul. 525A.
305R Weksler Thermometer Corp.
- Gages, Radiation.**.....Radiation gage used with strip-chart recorder is described in data sheet 10.9-3. Device makes continuous non-contact measurement of weight per unit area of sheet materials.
305S Minneapolis-Honeywell.
- Gages, Reflex Level.**....."K" Type reflex level gage has advantages: single row of tightening bolts; body free from distortion; glass easily removed; gage body turnable, free to expand. Literature.
305T Klinger Corp. of America.
- Gage, Tank.**.....Details of construction and operation of No. 30 tank gage are found in Bulletin 571. Installed on either old or new tanks, gage is highly accurate, completely automatic and easy to read.
305U Johnston & Jennings Co.
- Gages, Thickness.**.....Permanent-magnet thickness gage for measuring thickness of paint or other non-magnetic materials, no power required, measures from 0 to 60 mils. Details in Bulletin GEA-6458.
305V General Elec. Co.
- Gage, Ultrasonic Thickness.**.....Bulletin V-200 gives complete data on the time-saving advantages of using the Vidlage ultrasonic tester to measure thickness of metal, plastic and glass; to find flaws.
305W Branson Instruments Inc.
- Gage, Ultrasonic.**.....Bulletin V-301 discusses advantages of ultrasonic corrosion inspection. Instrument is considered ideal for determining corrosion rates in thousandths of an inch per year.
305X Branson Instruments.
- Gage, Ultrasonic.**.....How the Vidlage detects flaws or internal discontinuities in regularly shaped metals and plastics is described in Bulletin V-302. It provides a check on bonds between laminations.
305Y Branson Instruments.
- Gages, Vacuum.**.....Data sheet 9-31 gives details on the Type 2203-03 Pirani vacuum gage that features a sensing tube which greatly reduces zero drift. Suitable for 1 to 4 stations from 1 to 2,000 microns.
305Z Consolidated Electrodynamics.
- Gages, Vacuum.**.....Company offers single-station, discharge-type vacuum gage which gives continuous pressure readings over a range from 25 microns to 1×10^{-7} mm Hg. Data Sheet No. 9-43.
305AA Consolidated Electrodynamics.
- Gages, Vacuum.**.....Offers catalog describing Hastings Vacuum Gage, single meter type, with range of 0-100 microns Hg full scale. Gives dimensions & reports two single meter model instruments.
305BB Hastings Instrument Co.
- Gages, Vacuum.**.....Outstanding for accuracy and ability to withstand hard usage. Model 520 is an all-purpose gage with wide range and accuracy. Company makes information available.
305CC National Research Corp.
- Gages, Vacuum.**.....With 6 ranges covering pressures from 100 mm. to 0.1 micron. Equally ideal for the laboratory & production floor. It is precisely accurate & nearly immune to abuse. Bulletin G-20.
305DD National Research Corp.
- Gages, Vacuum & Pressure.**.....Hastings principle of noble metal compensated thermopiles offers its own unique advantages. Give highest accuracy, stable performance, rapid response, long life. Catalog 140.
305EE Hastings-Raydist.
- Gages & Valves, Electrically Heated.**.....Bulletin gives details & illustrates Jerguson valves & gages. Describes applications, variety of designs, construction, etc. Request copy of Data Unit #237.
305FF Jerguson Gage & Valve Co.
- Generators, Signal.**.....Company offers information on their Standard Signal Generator, Type LG-21 designed for application in the engineering laboratory or manufacturing area. Catalog L 4010.
305GG Radio Corp. of America.
- Generators, Signal.**.....Company offers information on Signal Generator, Type LG-20 designed for test & alignment applications in the IF, broadcast, police, marine, & amateur bands. Catalog L4020.
305HH Radio Corp. of America.
- Generators, Signal.**.....Information offered on VHF Standard Signal Generator, Type Lg-23, for measurement of sensitivity, aligning & testing. VHF communications equipment, etc. Catalog L4030.
305II Radio Corp. of America.
- Generators, Signal.**.....Company offers information on VHF Signal Generator, Type Lg-22 used in designing & evaluating receivers, amplifiers, etc. operating at frequencies from 5-230 MC. Catalog L4040.
305JJ Radio Corp. of America.

New Instruments & Controls

Literature Available

High Pressure Equipment—
Meter, Air Velocity

High Pressure Equipment.....Super-pressure Division—designers and manufacturers of instruments developing pressures from atmospheric to 100,000 psi. Catalog 406-C describes instruments.
306A American Instrument Co.

Illuminators, Gage.....Jerguson gage illuminator gives up to 3 times the illumination... lights entire gage glass, no glare or blind spots, low cost lighting, explosion-proof. Pull details in Data Unit 300.
306B Jerguson Gage & Valve Co.

Indicator.....Leaflet announces instrument to indicate telemetered information from strain gage type transducers. Precision d.c. meter movement and power supply excite measuring circuit.
306C Taber Instrument Corp.

Indicator Systems, Smoke Density.... Bulletin gives operating data on Fireye's smoke density indicator system FE-3. Provides installation information in schematic drawings. Bulletin CM-22.
306D Electronics Corp. of America.

Indicators, Moisture.....Data sheet describes features of Precision "Aquatator" including the Mag-Mix Stirrer & electric meter which indicates end points of determinations. Data Sheet 11259B.
306E Precision Scientific Co.

Indicators, Portable.....Compact, lightweight unit weighs under 4 lbs. and measures only 4"x5"x6". Yet it has a double scale 23 1/2 inches long. Company gives information in Bulletin 64-E.
306F Thermo Electric Co.

Indicators, Sight Flow.....Literature describes the line of sight flow indicators easily and inexpensively installed in any new or existing pipe line 1/2" to 2" N.P.T. Request Data Unit.
306G Jerguson Gage & Valve Co.

Indicators, Sight Glass.....OPW Visi-Flo sight glass indicators visibly alert you to rate of flow, viscosity, color of liquids, clarity and purity of product. Bulletin F-6 describes complete line.
306H Jordan Corp.

Indicators, Smoke....Improved smoke indicator and indicator-recorder, Type EHA, is described in Bulletin 30. Smoke density sensed by photoelectric cell is translated into meter reading.
306I Brooke Engineering Co.

Indicators, Stabilized pH.....Offer these advantages: quick warm-up; fast response; measuring errors "designed out"; only two adjustments; fine performance. Information in Data Sheet E-96(2).
306J Leeds & Northrup.

Indicators, Temperature.....Model F-1 is available with maximum visibility dial; choice of temperature ranges from minus 60°F to plus 750°F; etc. Catalog describing indicators & recorders.
306K Elec. Auto-Lite Co.

Indicators, Temperature.....Request information about L&N's portable, direct-reading thermocouple potentiometer indicators with automatic reference junction compensation in Data Sheet ND42-33(1).
306L Leeds & Northrup Co.

Indicator, Temperature.....Pyrotac constantly indicates temperature of heated equipment and sounds an alarm and/or shuts down the equipment at a safe, preset temperature. Pyrotac Bulletin.
306M Illinois Testing Labs.

Indicator, Temperature.....Information about the Speedomax G potentiometer instruments is presented in Data Sheet ND46-33(23). Temperatures are indicated at flick of switch on drum scale.
306N Leeds & Northrup Co.

Instrument Line.....Commander class is a new range of instruments engineered to be more practical and highly accurate for process measurement and control, according to announcement in 4-page bulletin.
306O George Kent, Ltd.

Instrument Systems.....20-page booklet "Your Next Move for Profit and Progress" shows how members of Consolidated group and their instruments can reduce the guesswork in doing business.
306P Consolidated Electrodynamics.

Instrumentation.....Literature package #4-1 covers areas of instrument applications in spectrophotometry and gas chromatography. Includes fluorescence and near infrared spectrophotometry.
306Q Beckman Instruments.

Instrumentation, Electronic.....The Batchetron is... Fairbanks-Morse electronics instrumentation plus accurate weighing in the Fairbanks-Morse tradition. Bulletin gives applications. Bul. ED-14.
306R Fairbanks-Morse & Co.

Instrumentation, Flow.....From the simplest general utility-type instrument to complex automatic ratio control systems, you get accuracy, efficiency, and economy. Company makes details available.
306S Foxboro Co.

Instrumentation, Pulp & Paper Mills.....Instrumentation systems for 24 sections of various types of mills are completely covered in a 32 p. catalog. Request your copy of Bulletin 90-130-10.
306T Fischer & Porter Co.

Instrumentation, Rotary Kiln.....If you are planning new kilns or plant modernization programs, consider Leeds & Northrup specialized experience in rotary kiln instrumentation. Folder N-0720(1).
306U Leeds & Northrup Co.

Instruments.....Seventeen instruments for digital and analog instrumentation are described in a short form catalog C704. Included are preset EPUT meters and portable EPUT meters.
306V Beckman Instruments.

Instruments.....Company presents catalog on instruments for analysis, control, and data processing. Covers analog data-recording systems, recording oscillographs, galvanometers, Bulletin 1305.
306W Consol. Electrodynamics.

Instruments.....Advantages of a line of plastic-housed instruments are detailed in a bulletin now available. Low-cost, small instruments indicate, transmit and control pressure and temperature.
306X Fischer & Porter Co.

Instruments.....Catalog 51-1450 shows small-case line of instruments for indicating, transmitting and controlling pressure and temperature. Housed in fiber glass cases, instruments resist outdoors.
306Y Fischer & Porter Co.

Instruments.....Using an arrow and caption method, Bulletin MSP-141 explains features of line of Ring Balance recorders, indicators and controllers. Includes full-page table of applications.
306Z Hagan Chemicals & Controls.

Instruments.....A digest of specifications of instruments and controls manufactured by this company is offered in their 12 p. condensed catalog. Can be had by writing for Publication 57-687-297.
306AA Hays Corp.

Instruments.....Bulletin gives illustrations and information on more than 20 types of Alnor instruments designed for measuring air velocities, temperatures and dew points. Available.
306BB Illinois Testing Labs.

Instruments.....Brochure presents all L&N instruments for chemical process applications. Highlights primary elements for detecting changes in temperature, pH, gas concentrations, etc. Request a copy.
306CC Leeds & Northrup Co.

Instruments.....Temperature and pressure instruments for use in the petroleum and chemical industries are individually illustrated and described in a 4 p. leaflet. Request a copy.
306DD Weksler Thermometer Corp.

Instruments.....Complete line of liquid level gages, valves and specialties. Hookup gages, chamber gages, welding pad gages, heated & cooled gages; non-frosting gages. Write for lit.
80-1 *Jerguson Gage & Valve Co.

Instruments, Dewpointer.....Alnor Dewpointer makes it easy to achieve consistent accuracy. Means faster readings with no time lost calculating variables. Details in Dewpointer Bulletin.
306EE Illinois Testing Labs.

Instruments, Electrode.....Dynalog Electronic Instruments provide uninterrupted evaluation of many process variables, sustained high accuracy. Dustproof, vibration-proof, foolproof. Bulletin 20-10.
306FF Foxboro Co.

Instruments, Electronic.....For an entire line of miniature, panel-mounting electronic instruments, 36 p. catalog and designer's guide has photos, outline drawing, theory of operation, mounting details.
306GG Trio Laboratories, Inc.

Instruments, Humidity Recording.....Bulletin describes & illustrates company's line of humidity recording & controlling instruments, as well as accessories. Bulletin No. H1009.
306HH Bristol Co.

* From advertisement, this issue

1957 INVENTORY

Instruments, Panel......Consotrol instruments require the minimum of panel space, yet provide unsurpassed operator convenience, visual accuracy, and ease of maintenance. Full details in Bulletin 13-18.
307A Foxboro Co.

Instruments, Process......Bulletin describes process instruments manufactured by Beckman. Covers electrolytic hygrometer, L-B infrared analyzer, leak detector, etc. Request a copy of Bulletin 491.
307B Beckman Instruments.

Instruments, Radioactivity......Over thirty instruments for measuring radioactivity have been added to edition of Nuclear-Chicago's catalog. A wide range of equipment is covered.
307C Nuclear-Chicago Corp.

Instruments, temperature Regulator......Designed for precise temperature control, Powers No. 11 regulator is self-powered... simple compact and dependable. Complete details in Bulletin 330.
307D Powers Regulator Co.

Manometers......Norwalk manometers meet the requirements for a sturdy dependable gage that will stand abuse and rough handling. Service and Universal types have unbreakable plastic tubes. Bul. 3100M.
307E Norwalk Valve Co.

Mass-Spectrometer......4 p. leaflet describes company's inexpensive, small-size model for medical, industrial and university application. Includes information on applications, accessories, specifications.
307F Consol. Electrodynamics.

Mass Spectrometer......Type 21-611 portable instrument designed for laboratory and industrial use is covered in a new bulletin 1843. Despite low price, instrument offers many features.
307G Consol. Electrodynamics.

Measurement Air Velocity......Fully illustrated 20 p. booklet explains how company's Velometer can be used for measuring air velocities in large open areas, at supply openings, at suction openings.
307H Illinois Testing Labs.

Measurement & Control, Temperature......Foxboro offers a wide variety of primary elements, transmission devices, indicators, recorders, and controllers. Company makes complete details available.
307I Foxboro Co.

Measurement, Surface......4 p. research bulletin, No. 15, discusses surface measurements in the steel industry. Sections cover surface characteristics, appearance, roughness measurements, research.
307J Jones & Laughlin Steel Corp.

Measurement, Viscosity......The Viscometran is an industrial instrument which provides accurate and continuous viscosity measurements of materials under actual process. Request product bulletin.
307K Brookfield Engrg. Labs.

Measuring Equipment, Flow......Accurate measurement of flow rate of air and gases. Easy panel or "in-line" mounting, full size range, capacities to 75,000 cfm air, rugged stuffing box. Bulletin SC1022.
307L Selas Corp. of America.

Metering Systems......11p. bulletin describes "Fluidometer", a volumetric automatic metering system. Includes descriptions, diagrams, & illustrations of Fluidometer's features. Bulletin FL-56.
307M Hetherington & Berner.

Meter-Relays......Contact meter-relays that both indicate and control almost any physical or chemical condition that can be detected electrically are described in a new 40-page catalog.
307N Assembly Products.

Meters......Bulletin describes over one-hundred measuring, transmitting, receiving, recording, & indicating instruments & control components for power & process applications. Bulletin G15-1.
307O Bailey Meter Co.

Meters......Data file 111 describes many ways EPUT and frequency meters can be used. It covers measurement of frequencies, rotational velocity, flow, pressure, temperature and strain. Charts.
307P Beckman Instruments.

Meters......The Betameter is used to measure and control sheet thickness, basis weight, coatings, etc. in continuous manufacturing processes. Employs beta radiation for measurement. Details.
307Q Isotope Products.

Meters......Neptune meters speed batch mixing; have automatic control; eliminate losses; eliminate insanitary conditions; save time, space; offer inventory and cost control. Data Book 566-Q.
307R Neptune Meter Co.

Meters......The Auto-Stop batching meter shuts off automatically, accurately, leaving the operator free to devote full attention to other details. Complete data in Bulletin 566-V.
307S Neptune Meter Co.

Meters......Offers data on Multimeter Type LM-1, a useful instrument in all phases of industry where measurement of resistance AC and DC voltages & DC current are encountered. Catalog L5010.
307T Radio Corp. of America.

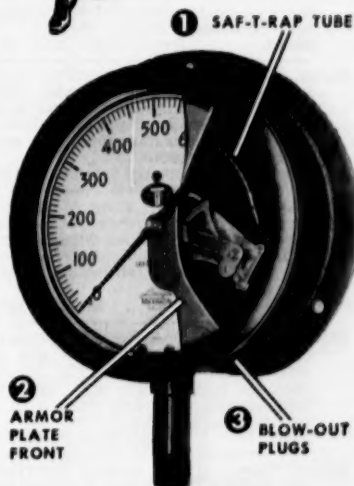
Meters......Rockwell stainless steel meters measure corrosive liquids fast. Now available for foods, pharmaceuticals, chemicals and liquors. Company gives information in product bulletins.
307U Rockwell Mfg. Co.

Meter, Air Velocity......Illustrated brochure describes instrument that reads both suction and supply air velocities. Details made available on request in a company bulletin 2448-G.
307V Illinois Testing Labs.

→ Want more information on any of these items? Just write its code number on one of the postcards inside the back cover, then mail it to us. It's that easy now.



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① New SAF-T-RAP Tube... special industrial tape wrapping which confines or smother's explosive effect when tube is ruptured.

② New ARMOR PLATE FRONT... completely separates dial and dial front from tube and movement assembly... thereby containing any explosive force within solid cast housing.

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And, all of these new features for greater safety and longer life are available on Lonerger SAF-T-RAP Gauges with ARMOR PLATE FRONT... in pressures of 1000# and over. Write for further details.

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New Instruments & Controls

1957 INVENTORY

Literature Available

Meters, Corrosion—
Pyrometers

Meters, Corrosion......Corrosometer direct readings, micro-inch sensitivity, probes of 30 alloys, for all corrosive systems. Meets requirements in chemical processing and laboratory testing. Details. **308LL** Crest Instrument Co.

Meter, Count Rate......Suggested uses and applications of Model 727 logarithmic count rate meter are discussed in a 2-page Bulletin 3002-7. Includes data on range, accuracy, dimensions, etc. **308A** Victoreen Instrument Co.

Meters & Filters......Control inventory and quality from storage or tank car through plant with meter-printed tickets for accounting of liquids handled. Catalog with full details on request. **308B** Bowser, Inc.

Meters, Flow......Positive displacement type described in Bulletin 400 is suitable for hard-to-handle liquids such as bunker oils, still bottoms and asphalt. In sizes from 1 to 6 in. or up to 450 gpm. **308C** Brooks Rotameter Co.

Meter, Flow......8 p. booklet describes the turbine flow meter, a device for precise measurement of liquid flow. Inserted directly into process piping, it accommodates a variety of liquids and flows. **308D** Fischer & Porter Co.

Meters, Flow......Catalog covers company's line of multi-stage, variable-area Flowrator meters. Includes sizing charts and complete dimension diagrams. For details, see your copy of Catalog 10-A-34. **308E** Fischer & Porter Co.

Meters, Flow......Figure 844 Flowrator meter gives all the advantages of variable area flowmetering and high capacity-linear flow output, all-metal construction, wide metering range. Catalog 10-A-43. **308F** Fischer & Porter Co.

Meters, Flow......1700 Series Flowrator meter and all-metal Fig. 52 armored Flowrator meter give you a predictable calibration performance in all ranges doing away with necessity of individual calibration. **308G** Fischer & Porter Co.

Meters, Flow......Hagan Ring Balance meter can do the work of a meter, recorder, computer and controller simultaneously. Detailed information in brochure of products and services. Bulletin GSF-901. **308H** Hagan Corp.

Meters, Flow......Multi-valve Fluidometer installations are available either jacketed or unjacketed and are "tailor-made" to fit the particular job. Company makes details available in Bulletin FI-56. **308I** Hetherington & Berner.

Meters, Flow......Versatile flowmeters for laboratory and pilot plant use. Invaluable to users of compressed gases who must determine accurate flow rates. For information, see Bulletin 202-6. **308J** Matheson Co.

Meters, Flow......Absence of obstructions or crevices in the smooth-bore teflon flow tube gives zero pressure drop—facilitates measurement of sanitary and corrosive liquids. Brochure 1200B. **308K** Nuclear Corp. of America.

Meters, Flow......Bulletin describes line of Series 18200 "Safeguard" Rotameters, versatile "variable area" type instruments for the accurate measurement of fluid rate-of-flow. Bulletin 18RG. **308L** Schutte & Koerting Co.

Meters, Liquid......Industrial metering bulletin 566B has been completely revised to help the process engineer select best meter-register combination for any job that can be handled with standard meters. **308M** Neptune Meter Co.

Meters, Liquid......Neptune Print-O-Meter prints exact quantities, with serial numbers and code letters to identify the batch and/or station. Sizes: 1 to 4 in., capacities 5 to 500 gpm. Bul. 567-H. **308N** Neptune Meter Co.

Meters, pH......Zeromatic (T. M.) pH meter described in Bulletin 705 is an automatic push button instrument with drift-free amplifier. It's ready to operate at the touch of a button. **308O** Beckman Instruments.

Meters, Positive Displacement......For measuring gas from 4,000 cfh to a million, you can trust the qualities of R-C Positive Displacement meters. R-C "plur-ability" pays dividends. Bulletin M-152. **308P** Roots-Connorsville Blower.

Meters, Power......Features, applications, description and specifications of RF power meters, type LP-90 from 20 to 1,000 MC and type LP-91 from 1,000 to 10,000 MC. Bulletins L3005 and L3010. **308Q** Radio Corp. of America.

Meter, Pressure......Catalog describes instrument for precise measurement of absolute, gage or differential fluid pressures over ranges from 0-4 psi. to 0-1,000 psi. with accuracy of 1 part in 2,000. **308R** Fischer & Porter Co.

Meter, Reaction End Point......Brochure describes design features and applications of end point meter for polymerization reactions. Based on viscosity of reactants. Data sheet #020. **308S** Brookfield Engineering Labs.

Meter, Reflectance......High-sensitivity brightness and reflectance meter detailed in bulletin 161. Instrument comes in two parts; exposure head and measurement unit. Request a copy. **308T** Gardner Laboratory.

Meters, Stainless Steel......Neptune meter achieves fine-instrument accuracy in the processing of corrosive liquids with complete protection from effects of corrosion. Request Bulletin 94/10 N. **308U** Neptune Meter Co.

Meters, Survey......A line of laboratory survey meters for detecting radioactivity are described in bulletin GS-57. The instruments are used widely in laboratories to locate and measure radioactivity. **308V** Nuclear Measurements Corp.

Meters, Turbine Flow......Flow metering systems based on bearingless turbine type flowmeters are discussed in 6-page leaflet. Other elements in system are converters, totalizers and recorders. **308W** Potter Aeronautical Corp.

Meters, Valves, Regulators......Completely revised, condensed 28-page catalog C-5000, Rev. 8 for the Rockwell line is completely restyled with more photo illustrations of all products. **308X** Rockwell Mfg. Co.

Meter, Vibration......Instrument for analyzing harmful vibrations in machinery described in bulletin 1538C. Design features, specifications, and price lists are included. Request a copy. **308Y** Consolidated Electrodynamics.

Meters, Volt, Vacuum Tube......Bulletin presents features, applications, description, specifications and accessories for type LV-16 vacuum tube voltmeter. For details, request Catalog L1010. **308Z** Radio Corp. of America.

Modulators, Crystal......Company offers information on their Crystal Modulator MI-30451, used with Signal Generators LG-22 and LG-23. Includes specifications and applications. Catalog L4080. **308AA** Radio Corp. of America.

Monitoring Systems......Detection, recording and warning of airborne particulate radioactivity by complete monitoring systems is described in a 6-page bulletin AM-57 now available. **308BB** Nuclear Measurements Corp.

Monitoring Systems, Temperature......For dependable, close checking of many temperatures—company offers completely integrated, flexible system designed for exact monitoring needs. Bulletin 72-E. **308CC** Thermo Electric Co.

Monitors, Impulse......Damol Corp. introduces first safety shutoff and alarm for automatically controlled processes which requires no sensing elements or electronic circuitry. Details in Catalog 256. **308DD** Damol Corp.

Monitors, Moisture......Type 26-301 Moisture Monitor gives accurate moisture measurement down to one part per million. Company gives complete information in Bulletin CEC 1834-X1. **308EE** Consolidated Electrodynamics.

Monitors, Radiation......"The Victoreen Remote Area Monitoring System" described in Bulletin 3045 consists of basic control unit, plug-in station units and sensing elements. Copies available on request. **308FF** Victoreen Instrument Co.

Operators, Pneumatic......Company offers bulletin on pneumatic spring and diaphragm operators. Illustrates Conoflow's Series B-10 B-20 Spring and Diaphragm Conomoters. Bulletin B-1020-5. **308GG** Conoflow Corp.

Operators, Valve......LimitTorque push-button valve operator opens and closes any type of valve quickly and safely; it guarantees against damage to valve stems, seats, etc. Catalog L-550. **308HH** Philadelphia Gear Works.

Operator, Valve.....Complete line of power operators for actuating screwed-gland type, wrench-operated valves is cataloged in bulletin V-604. Size, cylinder diameter, cylinder stroke, price included.
309BB Rockwell Mfg. Co.

Optical Instruments.....Booklet "Industrial Optical Aids" gives information on many inexpensive precision optical instruments and tells how they can be used to advantage.
309A Bausch & Lomb Optical Co.

Oscillograph, Recording.....Features reduced space requirements, 28-trace recording, electronic timing, 12 record speeds. Design specifications fully described in product announcement.
309B Consolidated Electrodynamics.

Panelboards.....QMB Saflex Distribution Panelboards have quick-make, quick-break, horsepower rated switch unit. Ample space for easier wiring and maintenance, rugged, safe. Bulletin SD-29 available.
309C Square D Co.

Panels, Control.....12 p. illustrated bulletin gives application information & lists Pan-A-Trol control panel benefits in engineering assistance, design, installation, etc. Bulletin GEA-6334.
309D General Electric Co.

Periscopes, Industrial.....Offer these periscopes for special assignments in remote viewing. Bulletin 301 gives step-by-step analysis: location of viewing head, location of eyepiece, body tube, etc.
309E Kollmorgen Optical Co.

Photometer, Pollution.....Polluted air, either outdoors or inside can be measured and controlled with a portable photometer described in Bulletin JM-1000-C. Applications, sensitivities and ranges.
309F Phoenix Precision Instrument.

Potentiometers, Transmitting.....Measure & control thermocouple temperatures or signal from such devices as pH amplifiers, gas analyzers, etc. Accurate process temperatures control. Bulletin MTT810.
309G Mannings, Maxwell & Moore.

Precipitator Control.....Bulletin on the Cottrell automation system tells how system controls power input to electrostatic precipitator to eliminate manual adjustments and increase efficiency.
309H Research-Cottrell

Pressure Pickup.....A pressure pickup, Type 4-316, discussed in company's Bulletin 1568A, is claimed the first able to operate continuously at 600 F. Operation is based on the strain gage principle.
309I Consolidated Electrodynamics.

Pressure Testing.....Technical file is working guide for sealing virtually any type of hole for testing vessels or assemblies up to pressures of 1,500 psi. Covers standard and special plugs and connectors.
309J Mechanical Products Corp.

Process Control, Electronic.....Bulletin covers; electronic miniature recorder, Type 150C; electronic recording control station, Type 162; electronic controller, Type 163; etc. Request Catalog 164.
309K Manning, Maxwell & Moore.

Process Control, Pneumatic.....Taylor Transcope Controller is especially suited to short spans of measurement fast and responsive to adjustments, exceptionally adaptable. Bulletin 98278.
309L Taylor Instrument Co.

Process Control System, Electronic.....An all-electronic system of miniature-type instruments that provides the ultimate in process control, product quality and total economy. Microsen Bulletin.
309M Manning, Maxwell & Moore.

Proportioning Systems.....Richardson Select-O-Weigh Proportioning Systems offer electronic perfection along with precise design of storage bin, feeder, and scale. Details in Bulletin 0351.
309N Richardson Scale Co.

Psychrometer.....How you can determine relative humidity with the Psychron, portable, battery-powered motor psychrometer is told in a 4-page bulletin just released by the manufacturer.
309O Bendix Aviation Corp.

Psychrometer.....4-page bulletin tells how the Bendix Friez psychrometer provides extremely accurate wet and dry bulb temperatures for determining relative humidity and dew point.
309P Gardner Laboratory.

Pushbuttons.....Company asserts that there is a Square D Pushbutton unit to fill any requirement. Three complete lines, for standard duty, heavy duty and oil-tight heavy duty. Bulletins available.
309Q Square D Co.

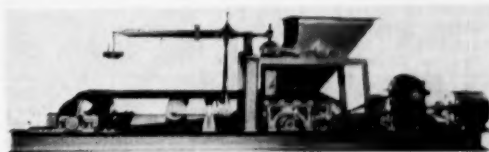
Pyrocons, Portable.....Compact in size, complete in precision design and workmanship, these rugged instruments assure highest standards of speed, accuracy and dependability. Details in Bulletin 4257.
309R Illinois Testing Labs.

Pyrometers.....Bulletin gives information on Bristol Dynamaster pyrometers for your temperature control job, large or small. Company gives technical data as well as Bulletin P1245A.
309S Bristol Co.

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SCHAFFER POIDOMETER CO. 2828 Smallman St.
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Literature Available

Pyrometers—
Spectrophotometers

Pyrometers......Alnor Pyrotac automatically protects furnaces, kilns and other heating equipment against damage due to excessive temperatures. Easily installed, low-cost reliable. Bulletin 2002.
310A Illinois Testing Labs.

Pyrometers, Portable......Consistently accurate type 1500 portable pyrometers available in ten scale ranges from 0-400 degrees to 0-3000 degrees F. or centigrade equivalents. Bulletin 4434.
310B Illinois Testing Labs.

Pyrometers, Portable Potentiometer......Model 9B Pyrotac is portable potentiometer pyrometer with interchangeable direct-reading scales. Checks and calibrates thermocouple temperature instruments.
310C Technique Associates.

Receivers, Metagraphic......Features a performance, flexibility, & ease of servicing in a pneumatic receiver. Bristol's line gives you 35 models to choose from. Request detailed Bulletin.
310D Bristol Co.

Recorder, Millivoltmeter......How the portable millivoltmeter recorder is used to survey electrolytic corrosion and deterioration of underground pipe and cables is detailed in Bulletin E-1117.
310E Bristol Co.

Recorder, Water Vapor......A continuous water vapor recorder determines low concentrations of water vapor in air or gas streams by measuring heat energy exchanged in adsorption or desorption.
310F U. S. Industrial Chem. Co.

Recorders......Offer valuable features: pre-calibrated plug-in receiver units; up to 4 pneumatic or electronic receivers—or 2 receivers and 2 integrators; etc. Request Product Specifications E12-5.
310G Bailey Meter Co.

Recorders......8 p. bulletin describes the American Microsen Series 130 Millivoltmeter & Microammeter Recorder. Includes functions, principle of operation, design features, etc. Bulletin MG10.
310H Manning, Maxwell & Moore.

Recorders & Controllers......Catalog, "pH and conductivity recorders and controllers," includes equipment for measuring, indicating, recording, and controlling electrochemical variables. Catalog 1551.
310I Minneapolis-Honeywell.

Recorders & Controllers......Wheelco Series 8000 recorders and controllers are described in Bulletin F-7955. Available with automatic reset and tamperproof cover. Wide range of models.
88 Barber-Colman Co.

Recorders & Indicators, Cases......Honeywell Tel-O-Set instruments are easy to install because company will ship cases separately and install chassis and controller later, at startup. Cat. C1001-1.
310J Minneapolis-Honeywell.

Recorders, Multi-Point......Permanent recording of as many as 16 points on one chart—at standard recording speeds ranging from 3 to 24 inches per hour—on Wheelco Series 8000 recorders. Bul. F-7955.
310K Barber-Colman Co.

Recorders, Oxidant......Bulletin covers description, operation and specifications (range, accuracy, air flow, liquid flow, recording, power consumption, size, weight, system time constant).
310KK Beckman Instruments.

Recorders, Potentiometer......Bulletin covers 8000 series potentiometer recorders—indicating and recording data, chart drive and calibration, power supply and amplifier, etc. Bul. F-7747.
310L Barber-Colman Co.

Recorders, Pulp Brightness......Data sheet 29.5-2 tells to apply Brown's Electronik instrument to record and control bleaching of paper pulp, measuring brightness with Alleghany meter.
310M Minneapolis-Honeywell.

Recorders, Ratographic......Catalog is a detailed report on the multiple applications, the many options available in P&P Ratographic instruments. Company gives details in Catalog 55-20.
310N Fischer & Porter Co.

Recorders, Temperature & Pressure......Brochure 1021 describes workings and advantages of filled-tube system recorders. Includes blueprints that show makeup, installation and operation.
310O Burgess-Manning Co.

Recorder, Water Vapor......Bulletin 0714-1 explains and illustrates the principle of operation of a continuous water vapor recorder for measuring low concentrations in streams of air or gases.
310P Mine Safety Appliances Co.

Refractometers, Differential......Brochure discusses theory and principles of refractometry as well as describing the Barnes differential refractometer with features and specifications of 3 models.
310Q Barnes Engrg. Co.

Refractometer, Process......Bulletin 1833, 8 p., describes process refractometer for monitoring and control of petroleum and chemical processes. What it measures, how it operates, automatic control.
310R Consol. Electrodynamics.

Regulators......Pneumatically-adjusted direct-acting flow rate regulators for automatic proportioning of two or more flows, remote adjustment of liquid flow rates. Request details in Form 562.
310S W. A. Kates Co.

Regulators......Company offers information on the Pressure Balanced Appliance Regulators for maintaining uniform gas delivery pressure to commercial & industrial gas appliances. Bulletin 5500M.
310T Norwalk Valve Co.

Regulators......Company offers information on Norwalk District and Station Regulators, including complete descriptions, dimension diagrams and charts. For details, request Bulletin 7000.
310U Norwalk Valve Co.

Regulators......Company offers information on Norwalk Service Regulators for control of pressures & flow rates in service line installations. Includes descriptions & diagrams. Request Bulletin 7500M.
310V Norwalk Valve Co.

Regulators......Bulletin on Rockwell "1001" Regulators covers where they are used; how they work; how they are made; how to evaluate performance; how to install; operating pressure limits. Bulletin 1059.
310W Rockwell Mfg. Co.

Regulators, Atmospheric......Norwalk atmospheric regulators deliver gas to burners at zero pressure and maintain gas-air ratios over a wide range of turn down. Complete details in Bulletin 6000.
310X Norwalk Valve Co.

Regulators, Flow Rate......Type SA flow rate regulators for clear liquids, light slurries and many suspensions, feature low cost, no lag, no hunting, no outside connections except flow piping. Form 561.
310Y W. A. Kates Co.

Regulator, Gas......Complete capacity tables on the 141 and 173 regulators are included for the first time in revised bulletin 1024-6 on Rockwell's line of high pressure regulators.
310Z Rockwell Mfg. Co.

Regulators, Gas......Now that maximum inlet pressure of Rockwell's "120" sensitive regulators has been doubled, you can find revised size, capacity and weight tables in Bulletin 1044, Rev. 6.
310AA Rockwell Mfg. Co.

Regulator, Oil-Air Ratio......Details on an oil-air ratio regulator are set forth in Data Sheet 722A. Unit delivers the proper oil pressure to correspond to the air pressure going through the burners.
310BB Hauck Mfg. Co.

Regulators, Pressure......Specialists in control of flow of steam will be interested in brochure 1011. Describes pressure regulators with illustrations, selection data and steam capacity table.
310CC Spence Engineering Co.

Regulators, Self-Operated......Bulletin C-655 describes Series 655 self-operated regulators that control pressures of water, steam, oil, gas or other fluids. Also used as air-operated shutoff valves.
310DD Fisher Governor Co.

Regulators, Temperature......Foster manufactures regulators for use in power or process plants, laundries and business buildings—for hot water storage heaters, ovens, driers, etc. Bul. T-101.
310EE Foster Engrg. Co.

Regulators, Temperature......Catalog gives complete features, data, dimensions, and specifications for Fulton Syphon temperature regulator. Offer unmatched service at the lowest cost. Catalog RC-D.
310FF Fulton Syphon Div.

Regulators, Temperature, Self-Operating......Syphon 999 T temperature regulator provides accuracy and simplicity that mean lower first costs—lower maintenance costs and processing costs. Catalog D-EC.
310GG Fulton Syphon Div.

* From advertisement, this issue

Regulators, Temperature, Self Operating......Series V Regulator is recommended for steam, water, gases and fluids not corrosive to brass. Operates on liquid filled thermostatic system. Bulletin 500.
311BB Cash Standard Stacon.

Regulators, Valve......Revised 12-page bulletin 1082, Rev. 2, covers Rockwell's "014" low-pressure balanced valve regulators. Schematic shows use of high-pressure "173" regulator to pilot-load the "014".
311CC Rockwell Mfg. Co.

Regulators, Vaporizer......Cat. No. 38-001 Vaporizer Regulator described in Bulletin 1832 is used with gaseous-type process analyzers and petrochemical monitoring instruments to vaporize sample.
311A Consolidated Electrodynam.

Regulators, Voltage......Stabiliness type TM (Tubeless Magnetic) regulators have no tubes to replace, no transistors, no moving parts to wear out. Company makes details available in Bulletin S157.
311B Superior Electric Co.

Regulators, Voltage......Bulletin covers Stabiline automatic voltage regulators... Type IE and Type EM. Rating chart simplifies selection of the regulator best suited to your need. Request Bulletin S 351.
311C Superior Electric Co.

Regulators, Voltage......Stabiline automatic voltage regulator will make sure that your electrical equipment operates at its most efficient and economical rating. Full details in Bulletin S-657.
311D Superior Electric Co.

Regulators, Voltage......1 p. illustrated data sheet SE-L2579 described company's new Stabiline automatic voltage regulator type TM7105. Unit is suggested for unattended locations, critical spots.
311E Superior Electric Co.

Regulators, Voltage......1 p. illustrated data sheet SE-L2578 covers company's Stabiline automatic voltage regulator type TM7101 designed for applications where little or no attention is possible.
311F Superior Electric Co.

Relays, Pneumatic Computing......Product Specifications P99-3 describes features, application, and operating characteristics of computing relay for pneumatic control systems. Explains various actions.
311G Bailey Meter Co.

Relays, Ratio......Hagan '3-15' is suited for process control systems such as fuel to air ratio in combustion processes, ratio of gases in gas mixing or proportional feeding of chemicals. Sheet SP4315.
311H Hagan Corp.

Relays, Speed Sensor......Relay allows use of speed as a controlling quantity in Bulletin SSR-2.1. Starts cycles automatically after preset speed is reached. Also as over or under speed limit.
311I Machinery Electrification.

Resolvers, Precision......Gives specification and characteristics of 3 precision resolvers in standard frame sizes—10, 11, 15 and 23. Gives solutions to problems encountered. Bulletin 374.
311J Norden-Ketay Corp.

Rotameter......Single-page leaflet gives details of the SM-11 Purge meter designed to withstand unusual amounts of abuse. Rated for 1,000 psi., meter is as unbreakable as pipe in line.
311K Lester-McKinney, Inc.

Rotameter......Bulletin 110, "A Brief Guide to the Brooks Rotameter Line" helps you select the appropriate meter for a specific application. Revolving disk inside bulletin indicates limitations of models.
311L Brooks Rotameter Co.

Rotameters......Bypass rotameter measures high fluid flow rates in pipes above 2-in. size. It eliminates need for overload checks, seal pots and equalizing valves. Details in Bulletin 116 available.
311M Brooks Rotameter Co.

Samplers, Air......Bulletin describes "M-S-A Pixt-Flo Sampler" which provides a solution to air pollution measurement. Versatile instrument permits use of a variety of filters. Bulletin 0810-2.
311N Mine Safety Appliances Co.

Scanners......Bulletin describes "Elphorecorder," an automatic paperstrip scanner and integrator. Includes specifications, design, operation, and other information. Section D, Sheets 19-20.
311O C. A. Brinkman & Co.

Scanning & Logging Systems......14 p. brochure describes the Taylor "Trans Scan Log" control system. Permits quick identification, evaluation & correction of any process change. Bulletin 98268.
311P Taylor Instrument Cos.

Servo-Mechanisms......Company offers experience with servo-mechanisms, controllers, aircraft systems, computer and memory devices, gyroscopes, digital systems, etc. Facilities Report.
311Q Daystrom Systems Div.

Sonar Caliper......Capacities of brine wells and LPG storage reservoirs can be determined by converting reflected sound waves into distance with the Sonar Caliper described in a 4-page bulletin.
311R Dowell, Inc.

Spectrophotometers......New KM-I table-top double-beam infrared recording spectrophotometer designed especially for routine analyses. Many accessories available, smaller dimensions. Bul. IR-448.
311S Baird-Atomic, Inc.

Spectrophotometers......Bulletin features articles about infrared spectroscopy and data processing, and subjects of interest to the analytical and process instrumentation fields. Request a copy of Bulletin 18.
311T Beckman Instruments.



- **LEAK-PROOF ONE-PIECE CONSTRUCTION**... bourdon tube fused to socket and tip by exclusive "Conoweld" process.
- **STURDY "MARSHALLOY" CASE**... formed of boiler-plate-thickness steel, copper clad inside and outside to give it the corrosion resistance of solid copper. It's one third lighter, but four times stronger than cast iron.
- **PRECISION "MASTERGAUGE" MOVEMENT**... with such exclusive features as the coined sector gear.
- **AVAILABLE WITH STAINLESS TUBE AND SOCKET**... choice of stainless steels and alloys for all corrosive conditions.
- **WITH "RECALIBRATOR"**... quickest and best way to keep a gauge accurate.

These features are combined only in "Mastergauge", standard bearer for the broad line of Marsh Gauges... each the best of its kind. Ask for data.

MARSH



MARSH INSTRUMENT CO., Sales Affiliate of Jas. P. Marsh Corp., Dept. 24, Skokie, Ill.
Marsh Instrument and Valve Co. (Canada) Ltd. 8407 103rd St., Edmonton, Alberta.
Houston Branch Plant: 1121 Rothwell St., Sect. 15, Houston, Texas.

Literature Available

Stabilizer, Temperature—
Warning Instruments

Stabilizer, Temperature......A self-contained temperature stabilizer, quart size and factory sealed, has been designed to maintain a specified temperature within insulated packages. TD 1246.
312MM U. S. I. Chemicals Co.

Switches, Automatic Transfer......When normal power fails this switch transfers the load & retransfers. Delayed transmission permits system stabilization to be attained. Bulletin 905.
312NN Automatic Switch Co.

Switch, Commutating......Delta switch is a unique commutating switch that uses a jet of mercury for a wiper arm. Delta switch is a custom engineered unit. Specifications given in Data Sheet S56-09.
312A Norwood Controls.

Switches, Control......Brochure covers the latest addition to the Dillon line of precision instruments, the Dillon Force Control Switch. Includes all capacities & price list. Bulletin 28E.
312B W. C. Dillon & Co.

Switches, Float......Indication and control of liquid oxygen level are discussed in Bulletin 1066 dealing with float switches. Weighing ¼ lb. switches work from -320 to 200 F. to hold level where desired.
312C Revere Corp. of America.

Switches, Gas Pressure......Honeywell C437A industrial pressure switch features: sealed pressure chamber; visible switch position; protected settings; optional lockout mechanism. Specifications S 1011-1.
312D Minneapolis-Honeywell.

Switch, Liquid-Level......Technical Bulletin 381-1 describes a liquid-level switch which utilizes a radioactive material in the sensing element. Information is complete on construction, applications, etc.
312E Robertshaw-Fulton Controls Co.

Switches, Pressure......Pressure switch, 9622 or C9622, can sense two different pressures in one system and actuate independent electrical circuits at any two desired points. Information upon request.
312F Barksdale Valves.

Tape Recorder-Reproducer System......Data system features single chassis, modular construction, 14-inch reels, voltage monitoring; simultaneously records and reproduces. Request information.
312G Consolidated Electrodynamics.

Telescopes, Industrial......A.C.M.I. Borescopes permit visual examination of interior areas & surfaces not otherwise visible. They save time & money & prevent costly dismantling. Borescopes Booklet.
312H American Cystoscope Makers.

Temperature Monitors......For details on temperature monitoring systems see Thermo's bulletin 72. It covers various standard sub-assemblies and their arrangement into several hundred-point systems.
312I Thermo Electric Co.

Testers, Fineness......Bulletin describes Precision Blaine Air Permeability Fineness Tester for determining fineness of Portland cement, pharmaceutical powders & other granular materials. Bul. 233.
312J Thermo Electric Co.

Testing Apparatus, Soils-Asphalt......128 p. catalog contains descriptions of over 1350 items of apparatus for engineering tests of soils, concrete asphalt and construction materials. Soiltest Catalog.
312K Soiltest Inc.

Thermistors......Catalog gives dimensional drawings, physical descriptions, and complete electrical specifications for various forms of precision thermistors, including beads, rods, discs. Cat. EMC-1.
312L Fenwal Electronics.

Thermocouple Assemblies......Bulletin TA-457 illustrates and describes a wide variety of standard Serv-Rite thermocouple assemblies. Includes catalog numbers, sizes, prices and ordering information.
312M Claud S. Gordon Co.

Thermocouples......Conax catalog of thermocouple assemblies & pressure sealing glands introduces Conax Check Wells, Speedwells, Multiple Wire Thermocouple Glands, etc. Catalog 1556.
312N Conax Corp.

Thermocouples......"AutoRef" provides fast, accurate cold-junction compensation for thermocouple circuits where temperatures and other D.C. signals must be read together. Request Bulletin 81-E.
312O Thermo Electric Co.

Thermocouples......Miniature spring-loaded bayonet thermocouples always give fast, dependable response. Can be used to measure temperatures at many different depths. Request Bulletin 2-E.
312P Thermo Electric Co.

Thermocouples......14 p. bulletin describes company's line of miniature protected thermocouples. Includes listings of calibrations & temperature ranges available, immersion lengths, etc. Bulletin 5.
312Q Thermo Electric Co.

Thermocouples......T-E's "Ceramo" thermocouples will be used to check reactor temperatures on atomic sub "Seawolf." Information on these metal-clad, ceramic-insulated thermocouples; Bul. 31-200-E.
312R Thermo Electric Co.

Thermocouples & Accessories......Bulletin 4181 lists thermocouples and accessories for every temperature measurement from -100 degrees F to 3000 degrees F. Bulletin 4257 on surface temperature items.
312S Illinois Testing Labs.

Thermocouples, Miniature Gasket......Fast, accurate skin temperature measurement with easily installed T-E Miniature Gasket Thermocouples. Choice of three temperature ranges. Ask for Bulletin 1-E.
312T Thermo-Elec. Co.

Thermocouple, Spring-Loaded......Where pressure contact is needed for efficient temperature measurement, the Brown spring-loaded thermocouple assures this contact. Specification S001-6.
312U Minneapolis-Honeywell.

Thermometer Elements, Resistance......Answer industry's need for a better way to measure surface temperatures. Flexible, easy to apply, low cost, fast response. Full details in Brochure No. T-56.
312V Arthur C. Ruge Assoc.

Thermometer Probe, Resistance......By utilizing a grid of extremely fine platinum wire welded to platinum lead wires, tiny probe is capable of operation over range of from 0 to 1200° C. Bulletin.
312W Arthur C. Ruge Assoc.

Thermometers......Thermotrols-4000 Series Thermometers—have these features: mercury-actuated, electronic control action, invar metallic compensation for case. Request Bulletin F-8042.
312X Barber-Colman Co.

Thermometers......Data sheet describes twelve-channel dial thermometer with flashlight battery powered circuit & thermistor probes. Interchangeable probe types listed. Request a copy.
312Y Arthur S. LaPine & Co.

Thermometers......"Every Angle" Bi-Metal Thermometers. Three feature: "Every angle" design for installation anywhere, anti-parallax maxivision dial, bi-metal actuation. Details in Bulletin 148.
312Z Manning, Maxwell & Moore.

Thermometers......Weston bimetal thermometers are available in types, sizes and ranges for industrial as well as laboratory needs. They are easy to read and right for budget reasons. Bulletin T13.
312AA Weston Elec. Instrument Corp.

Thermometers, Dial......Ranges, catalog numbers, list prices for American Bi-Metal Dial Thermometers. Type 91 series adapter sets for thermometers. Features and specifications in Bulletin 149.
312BB Manning, Maxwell & Moore.

Thermometers, Resistance......RdF Strapon resistance thermometer can be used in the presence of radioactive fields, high humidity, water, alcohol, salts, mineral and vegetable oils. Literature.
312CC Arthur C. Ruge Associates.

Thermometer, Tank......Bulletin S-54 lists the features of a corrosion-resistant tank thermometer. One-piece plastic cup case is non-sparking plastic; tube is held by sturdy clips, replaces easily.
312DD Wexler Thermometer Corp.

Thermostats......Offer catalog on miniaturized & surface-mounted thermostats. Presents physical, electrical & performance data required for specifying types of Thermo-switch controls. Catalog MC-124A.
312EE Fenwal, Inc.

Thermostats......Brochure describes two types of Fenwal Thermo-switch units which are encased in plastic for service in highly humid or corrosive environments. Company offers free Bulletin MC-137.
312FF Fenwal, Inc.

Thermostats......Bulletin describes a heavy duty thermostat which controls two circuits simultaneously. Series 22000 dual-control Thermo-switch. Includes dimensions, availability. Bulletin F-371.
312GG Fenwal, Inc.

Thermostats......Catalog offers data on Snap-Action Thermostats. Lists physical and performance specifications for many types of snap-action, locally-adjustable thermostats. Ask for Catalog MC-120B.
313NN Fenwal, Inc.

Thermostat......Electric thermostat designed to control temperature and movement of heavy liquids where flow must begin before selected temperature is reached. Is described in bulletin RT-808.
31300 Robertshaw-Fulton Controls.

Thermowells......Bulletin No. D. 4 p., describes expanded line of industrial thermowells, both bar stock and built up, and the alloys in which they are available. Specifications are listed in chart form.
313A Thermo Electric Co.

Time Components, Duplex......Duplex Time Component consists of an accurate synchronous electric time unit combined with a spring driven time unit held in reserve. Literature and details.
313B Industrial Timer Instruments.

Timers......Bulletin describes the Cramer Interval Timers, featuring high-torque motors and wide timing range, designed for commercial, industrial, process control, and laboratory use.
313C Cramer Controls Corp.

Timers......Type A for applications requiring shorter timing periods, $\pm 15\%$ accuracy and no interlocks; Type B for applications requiring timing periods up to 3 minutes, maximum accuracy. Bulletin 9050.
313D Square D Co.

Timer, Cycle......Complete technical information on a motor driven cycle timer. Type 571, is available in Bulletin PB-571. Includes application and operation data and nonstandard arrangements.
313E Cramer Controls Corp.

Timers, Electronic......4-page bulletin on line of electronic timers provides specifications, applications and operation of 11 timers of the repeat cycle, interval and delay types. Available on request.
313F G. C. Wilson & Co.

Timer, Interval.....In Bulletin PB-271 you'll find catalog and technical data on a manually set, motor driven interval timer, Type 271. Covers construction, application and operation details.
313G Cramer Controls Corp.

Transducers, Engine-Pressure......For temperature compensated dynamic pressure measurement. Fields of applications: aircraft engines, automotive engines, gas engines, gas turbines, etc. Bulletin A257.
313H Norwood Controls.

Transmission Systems, Pneumatic......Laminair pneumatic transmission system discussed in Bulletin 750 provides a sensitive type of instrumentation. Output pressure varies directly with fluid flow.
313I Simplex Valve & Meter Co.

Transmitters, Differential Pressure..... Taylor Fixed Range Differential Pressure Transmitter (200TD 111) provides an excellent means of measuring flow, liquid level, or pressure. Bulletin 98274.
313J Taylor Instrument Cos.

Transmitters, Cell Flow......Company's d/p Cell Flow Transmitters have revolutionized many an industrial process, by modern high speed flow measurement and control. Details in Bulletin 13-11A.
313K Foxboro Co.

Transmitter, Floatless......How a system transmits water or waste flow measurement from a Parshall flume to a flow recorder is described in application engineering data sheet, 831-35.
313L Foxboro Co.

Transmitters, Flow......Line of high-head differential pressure transmitters features low cost, accuracy, rangeability, simplicity, and flexibility. Full details contained in Product Spec. P22-6.
313M Bailey Meter Co.

Transmitter, Liquid Level......A differential pressure liquid level transmitter mounted directly on a tank nozzle measures viscous or slurry-type liquids in open or closed vessels. TD 1285.
35-6f U. S. Industrial Chem. Co.

Transmitter, Non-Indicating......Brown, non-indicating, pneumatic pressure transmitter for vacuum or pressure measurement is described in Specification S705-1. Ranges 0-90 in. water to 0-4,000 psi.
313O Minneapolis-Honeywell.

Transmitters, Pneumatic Pressure..... Ashcroft pneumatic pressure Transmitter available with pressure sensing elements in all standard pressure ranges & Bourdon tube materials. Bul. 340.
313P Manning, Maxwell & Moore.

Transmitters, Potentiometer......Unit continuously standardized automatically; easy continuous adjustment of range span and zero suppression; both electronic and pneumatic units plug in, etc. Catalog 98262.
313Q Taylor Instrument Cos.

Transmitters, Pressure......Style H electric transmitter for low differential pressure discussed in Bul. 501. Shows construction, dimensions and operation. Small differentials measured without hysteresis.
313R Burgess-Manning Co.

Transmitters, Pressure......Model "P" pressure transmitter, a lightweight, rugged, sensitive unit, operates on force-balance principle and is ideal for viscous substances. Request Bul. P-2520-2.
313S Conoflow Corp.

Transmitters, Pressure......Advantages of the "null-balance-vector" principle in pressure and differential pressure transmitters are covered in Folio No. 56-12 and Folio 56-13A which describes these new units.
313T Republic Flow Meters Co.

Transmitters, Temperature......Bulletin explains why Foxboro M/12A Temperature Transmitter gives better performance with lower installation and maintenance cost. Details in Bulletin 13-17.
313U Foxboro Co.

Transometers......Bulletin shows how to meter, integrate and control with Askania Transometer. Describes flow, indication, recording and control applications for fuel oil, viscous & other liquids. Bul. 301.
313V Askania Regulator Co.

Variators, Speed......Cleveland speed variator gives stepless speed over a full 9:1 range—from $\frac{1}{2}$ to 3 times input speed. Output speed adjusted by hand wheel or by remote control. Bul. K-200.
313W Cleveland Worm & Gear Co.

Varicells......Essentially, the components of a varicell are a powerstat variable transformer, a fixed-ratio rectifier transformer, a saturable core reactor, a rectifier stack and a ripple filter. Bulletin SE 9551.
313X Superior Electric Co.

Vessel, Liquid-Metering..... Leaflet describes function of model 26 IM positive volume liquid metering vessel. Unit is designed for field metering of oil and water eliminating level controls.
313Y Delta Tank Mfg. Co.

Viscometers..... Catalog O-57 describes fully the Brookfield synchroelectric viscometers, special models, accessories, and includes interesting highlights on viscosity as a valuable product dimension.
313Z Brookfield Engineering Lab.

Viscometer, Continuous......Catalog VT-57 gives complete information about the Brookfield Viscometran and its applications to continuous in-process measurements and control viscosity.
313AA Brookfield Engineering Lab.

Viscometers......Industrial instrument measures viscosity of materials under actual process conditions. Design based on principle that's been proven and accepted in laboratory instrument. Bulletin.
313BB Brookfield Engineering Lab.

Viscosity Recording..... Process mounted viscometer, the Viscometran, is used for end point determination and continuous "inprocess" viscosity recording. Dependable, easily cleaned. Data sheet.
313CC Brookfield Engineering Labs.

Voltmeters......Company offers information on their DC Null Voltmeter, Type LV-14, having wide application in the test or calibration of numerous types of equipment. Includes specifications. Catalog L1010.
313DD Radio Corp. of America.

Voltmeters......Company offers information on DC Null Voltmeter, Type LV-15 used directly to read, test & calibrate various types of equipment. Includes specifications, applications, etc. Catalog L1020.
313EE Radio Corp. of America.

Warning Instruments......USG alarm gages and thermometers provide a warning signal (light, bells, etc.) when temperature or pressure in a process rises or falls beyond predetermined limits. Data.
313FF U. S. Gauge Div.

* From advertisement, this issue

➔ Want more information on any of these items? Just write its code number on one of the postcards inside the back cover, then mail it to us. It's that easy now.

New Maintenance Tools & Supplies

1957 INVENTORY

Borescope

Provides complete internal inspection. (314A)

... New borescope provides complete internal inspection for tanks, vessels, chambers and other equipment. Instrument has adjustable mirror which can be controlled by a hand-wheel to permit scanning from retrospective

through right angle to forward oblique. Borescope magnifies 10 fold, gives 9-in. field of vision at 24-in. distance and has a viewing head with 100-W. lamp.—*Lenox Instrument Co., Philadelphia 3, Pa.*

Car, Litter

Speeds accident cases to aid station. (314B)

... Electric-powered ambulance, with three-wheel suspension and sharp turning radius, operates within plant or outside. It has room for driver,

nurse and patient. Also, there's space for stretcher, oxygen equipment, medical bag.—*West Coast Machinery, Inc., Stockton, Calif.*

Clothing, Industrial

Combines comfort with toughness. (314C)

... Competitively priced line of Chem-Wear clothing is light, tough garment that's more comfortable than straight synthetic clothing and more durable than pure cotton or wool. Cloth in garments is blend of 68% Dynel with

32% cotton. Cotton reduces static which causes discomfort and reduced freedom. Dynel helps garment to retain shape, appearance and serviceability.—*Chem-Wear, Inc., Darien, Conn.*

Coater, Pipe

Applies tar-epoxy blend to pipe interior. (314D)

... New machine applies Taret coating inside 20-ft. lengths of pipe to a thickness of 15 to 20 mils in a single pass. It can be used with 3-, 4- and 6-in. pipe. Manufacturer of tar-epoxy

blend won't market machine but will assist users of coating to manufacture the applicator.—*Pittsburgh Coke & Chemical Co., Neville Island, Pittsburgh, Pa.*

Coating, Protective

Resists attack by corrosive materials. (314E)

... "Maintz" is Hypalon-based coating for severe corrosion service. It's chemically inert and resistant to oxidation, ozone, weathering, acids, re-

frigerants, greases. Coating is particularly suited for protection of both buildings and equipment.—*Chester Chemical Co., West Chester, Pa.*

Copying System

Reproduces drawings accurately, clearly; stores them on file cards. (314F)

... Using 105-mm. film with 16 times the area of conventional 35-mm. micro-film, Micro-Master system produces sharp, distortion-free second originals—up to 36 x 54 in. size—from either clear or muddy engineering drawings. Negatives are sufficiently small to fit standard 5 x 8-in. card-file drawers which occupy only 1/25th the space needed for an equal number of tracings. Negatives provide pin-hole-free image of all line work.—*Keuffel & Esser Co., New York 16, N. Y.*



Dispenser, Graphite

Applies graphite rapidly to friction surfaces. (314G)

... Graphite container and gun dispenses graphite with squeeze of fingers. Gun sprays dry lubricant at its target while held in any position.

Enough graphite is contained in the unit for several thousand shots of lubrication.—*Servwell Products Co., Cleveland 3, Ohio.*

Fabric, Aluminized

Enables man to work at 1,200 F. for two or three minutes. (314H)

... Four years of on-the-job evaluation show that aluminized fabric clothing protects against radiant heat; is lightweight, flexible and durable, enabling wearer to work comfortably. Variety of garments includes: firemen's coats; long coats, aprons, for steel workers; coats, suits, and gloves for stand-by fire-fighting equipment

in industrial plants. Reason why workers can withstand 1,200 F. for two or three minutes is that nine-tenths of heat is reflected away by aluminum coating of fabric and little heat that gets through is dissipated by layer of glass-fibre quilting beneath.—*Minnesota Mining & Mfg. Co., St. Paul 6, Minn.*

Fitting, Lubrication

Speeds greasing. (314I)

... Keystone RT fitting can cut lubricating time for anti-friction bearings 80% or more. It can be used on

bearing housings now equipped with conventional relief plugs.—*Keystone Lubricating Co., Philadelphia 22, Pa.*

Framing, Steel

Do-it-yourself material.
(315A)

... Dexion, an all-purpose material, is cold-rolled steel angle with electro-galvanized finish. Precision engineered slots and round holes, spaced at 3-in. intervals along angle, enable

rapid assembly and adaptability for building variety of structures. A wrench and special cutter are the only tools needed.—*Acme Steel Co., Chicago 8, Ill.*

Glove, Industrial

Made of non-absorbing rubber compound. (315B)

... Industrial glove made of exclusive non-absorbing butyl rubber protects hands from most destructive acids, e.g., sulfuric, nitric and phosphoric.

Glove also shows good resistance to oxygen, ozone, oils and salts.—*Hood Rubber Co., Div. of B. F. Goodrich, Watertown, Mass.*

Grinder, Valve

Regrinds any globe or gate valve in place.
(315C)

... Labor savings as high as 400% are possible when regrinding valve seats with motor-driven Dexter valve reseating grinder. With machine, any

globe or gate valve from $\frac{1}{4}$ to 12 in. can be reground without removing valve from the line.—*Leavitt Machine Co., Orange, Mass.*

Hose, Fire

More flexible, lighter.
(315D)

... New fire hose has carcass of dacron and cotton fabric with unusually high tensile strength. Neoprene synthetic tube makes hose suit-

able for water or oil service. Cover is new neoprene compound that resists heat, flame, acids, oxidation.—*Hewitt-Robins, Inc., Stamford, Conn.*

Indicator, Leak

Wrap-around tape discolors with acid. (315E)

... Plastic tape indicates when acid or caustic lines are leaking. Tape increases protection for workers in areas where acid lines are strung overhead. It also prevents damage to equipment in such cases. Tape is made of fiber

glass covered with vinyl resin and coated with a patented indicator. Thin protective coating prevents triggering of the indicator by fumes or climatic conditions.—*Neirad Industries, Inc., Darien, Conn.*

Linings, Tank

Convert worthless tanks into usable systems.
(315F)

... To convert worthless old tanks into usable systems, tanks are lined in the field by molding or cementing resin linings of asbestos-filled phenolic or furan, graphite-filled epoxy and glass-reinforced polyester. Savings are substantial because cost of usable

tank is less, need for razing original is eliminated and, where tanks are inside buildings, there's no need to make changes in the building structure to permit entry or removal of large tanks.—*Haveg Industries, Inc., Wilmington 8, Del.*

Lubricant, Gear

Open-gear type. (315G)

... Plastigear-X, open-gear lubricant, lasts 4x longer than standard open-gear greases. It can't melt or freeze,

isn't susceptible to water, extreme pressures.—*Warren Refining & Chemical Co., Cleveland, Ohio.*

Metal, Plastic

Soft plastic-steel mixture hardens to rigid mass.
(315H)

... Many pieces of damaged metal can be repaired with Devcon plastic steel. Consisting of combination of 80% steel and 20% plastic, Devcon is as easy to use as modeling clay. Two hours after addition of special hardening agent,

mixture becomes rigid, tough, strong, steel-like mass. Devcon is highly resistant to most acids, alkalis and chemicals. It comes in two forms, Devcon A and Devcon B.—*Devcon Corp., Danvers, Mass.*

Nozzle, Fire

Versatile. (315I)

... When fighting flammable-liquid fires with PW-50 nozzle you may shift quickly to straight stream or spray

stream, using either foam solution or water alone.—*National Foam System, Inc., West Chester, Pa.*

Pad, Mounting

Reduces machinery noise, vibration. (315J)

... Air-Loc pad, combination of Geon polyvinyl resin, sisal and granulated cork, is particularly suited to use as a machinery mount. Tough and flexible,

pad recovers 99% of original thickness even after repeated loadings to 1,000 psi.—*Clark-McDermott Co., Franklin, Mass.*

Patch, Resin-Cloth

Restores equipment to service. (315K)

... Metal tanks, pipe and conduit can be patched without welding by using Sonite compound and glass cloth. Patches have good adhesion to metals,

are oilproof and waterproof, resist acids and alkalis, withstand temperatures to 200 F.—*Smooth-On Mfg. Co., Jersey City 4, N. J.*

New Maintenance Tools & Supplies

1957 INVENTORY

Powder, Metallizing

Rebuilds crankshafts.
(316A)

... Colmonoy C-250 is high chromium-nickel metallizing powder developed for rebuilding engine and compressor crankshafts. Resulting surface de-

velops anti-friction qualities which enhance delivered horsepower and improve crankshaft life.—*Wall Colmonoy Corp., Detroit 3, Mich.*

Pump, Fire

Trailer-mounted, with foam unit.
(316B)

... Trailer-mounted fire pump and foam unit combination can be moved manually or hauled behind a vehicle. Trailer is designed to produce foam for fighting flammable liquid fires.

Where water is available only from draft, unit can produce high-pressure stream of water instead of foam.—*National Foam System, Inc., West Chester, Pa.*

Rod, Cleaning

For gage glasses.
(316C)

... Key to success of cleaning rod for inside of gage glasses is tubular cloth swab slipped over a piece of

corrosion-resistant spring steel.—*Jerguson Gage & Valve Co., Somerville 45, Mass.*

Shoe, Conductive

Dissipates static charges.
(316D)

... Static-conductive shoes dissipate static electricity as fast as it generates. Shoes have vinyl soles that resist wear, are chemically resistant

and maintain conductivity at a high level longer than any other conductive soling material.—*Bates Shoe Co., Webster, Mass.*

Tool, Fastening

Seats fasteners into concrete or metal.
(316E)

... With Shure-Set tool, worker can drive a fastener through steel $\frac{1}{4}$ in. thick. Also, it will seat fasteners in materials like concrete, concrete block,

cinder block, brick. Tool can be used to install electrical systems, instruments.—*Olin Mathieson Chemical Corp., New York 22, N. Y.*

Tool, Flaring

Does job on copper tubing in 10 seconds.
(316F)

... Copper and many grades of aluminum tubing can be flared perfectly within 10 sec. by Spe-D-Flar tool. To assure perfect flare needed to hold pressure, tool is constructed so that

flaring pin always is aligned perfectly with tube to be flared. Five sizes available are $\frac{1}{8}$, $\frac{9}{16}$, $\frac{1}{4}$, $\frac{7}{16}$ and $\frac{1}{2}$ in.—*William L. Engresser & Co., El Monte, Calif.*

Tool, Refacing

For stuffingbox.
(316G)

... With BJ stuffingbox refacing tool you can prepare a smooth gasket surface on stuffingbox end to assure pro-

per performance of mechanical seal.—*Byron Jackson Pumps, Inc., Los Angeles 54, Calif.*

Welder, Plastic

Can be used satisfactorily by maintenance help.
(316H)

... Seelye model P plastic welder covers welding requirements of all thermoplastic materials from thin polyethylene sheet to heaviest PVC in current use. Yet operation is so sim-

ple that personnel without special training can master it with minimum practice merely by following simple operating instructions.—*Seelye Craftsmen, Minneapolis, Minn.*

Literature Available

MAINTENANCE TOOLS & SUPPLIES

Boiler-Cleaning Equipment... Vacuum cleaning equipment for keeping boilers clean is highlighted in a 4-page bulletin issued recently. Both stationary and portable units are discussed.
316I Spencer Turbine Co.

Borescopes... Zeiss-Kollmorgen models TG-1, TG-2 and TG-5 Borescopes are described in bulletin. They are instruments for visual close-up inspection and examination of internal areas.
316J Kollmorgen Optical Co.

Cleaner, Portable... The Hoffco-Vac high-vacuum portable cleaner described in Bulletin M-135 was developed for non-stop operation on heavy dust deposits. It eliminates health hazards.
316K U. S. Hoffman Machinery.

Cleaning, Chemical... Series of 7 folders cover the intangibles behind the chemical cleaning service Dowell offers. Designed to present a broad picture of company's operations. Folders available.
316L Dowell Inc.

Cleaning, Chemical... Report discusses nature of soils usually encountered in chemical processing equipment, and the Oakite compounds developed to remove them. Request Service Report B-6039.
316M Oakite Products.

Cleaning Process Equipment... Use in-place chemical circulation to clean towers, tanks, pumps, compressors, lines, fittings and other process equipment quickly, safely. Technical Bulletin.
316N Oakite Products Inc.

Cleaning & Sanitizing, Oil Processing Equipment... "How to Clean Edible Oil Processing Equipment" will be helpful to processors as a reference on methods of cleaning and sanitizing equipment.
316O Oakite Products.

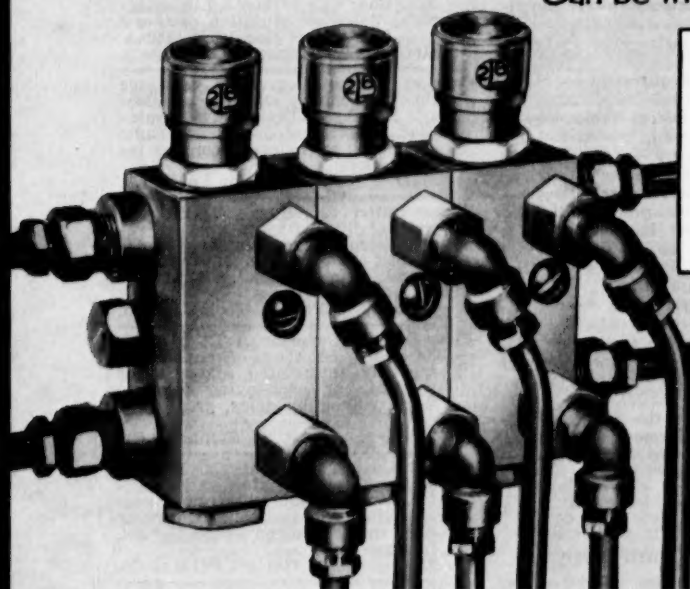
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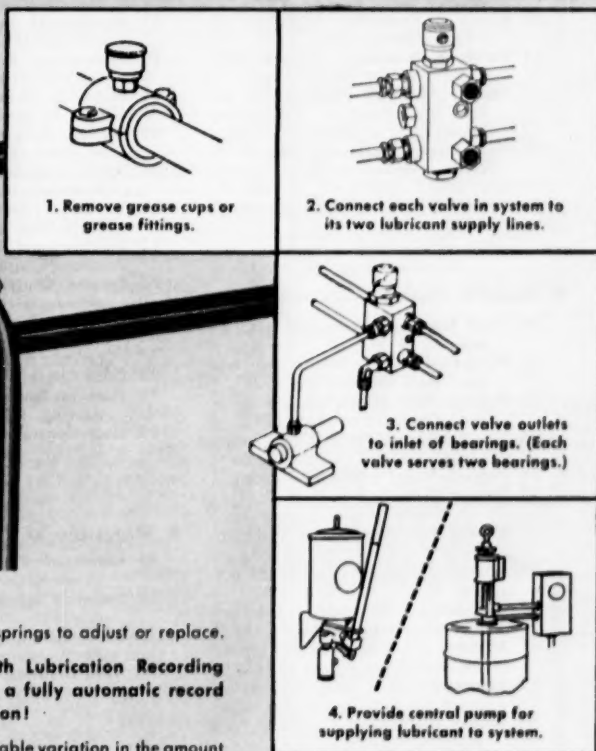
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Handles difficult multiple-bearing lubrication under all conditions. Fully sealed for clean lubrication of power shovels, cement kilns, conveyors—any outdoor or indoor installation. Operates whether completely immersed in fluid . . . covered by dirt or grit . . . or protected by anti-corrosive paint. For fluid oil or light grease. Four sizes, delivering from .050 to .500 cu. in. of lubricant.

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3. Connect valve outlets to inlet of bearings. (Each valve serves two bearings.)

4. Provide central pump for supplying lubricant to system.

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- Eliminates point-by-point lubrication methods—services all bearings in one operation.
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1957 INVENTORY

Cleaning Systems, Vacuum.....The Lamson Exidust central vacuum cleaning system for industrial and commercial cleaning needs is discussed in bulletin on operating and design features. Bulletin E-6. 318A Lamson Corp.

Cleaning Tools.....News release describes super-jet condenser cleaning tool that provides extremely fast & effective cleaning of condenser tubes. Includes 3 types of slugs to fit all standard tubes. 318B Crane Packing Co.

Commutator Maintenance.....27 p. booklet covers: maintenance requirements; factors affecting commutation; and carbon brush materials. Solve commutation problems with free copy of Booklet B-6150-A. 318C Westinghouse Elec. Corp.

Copying Machines.....You can save time and money with the all-electric 1957 Apeco Dial-A-Matic Auto-Stat. Special report gives results of a study of engineers' copying requirements. Also book. 318D Am. Photocopy Equip. Co.

Flame Cutter.....How you can save welding fittings by re-working, re-conditioning and salvaging is described in a bulletin on the Universal flame cutter. Series of pictures show how. 318E Vernon Tool Co., Ltd.

Floor Repairs, Concrete.....6 p. folder describes Stonhard Stonpach, a specially formulated material for patching or over-laying concrete floors ruined by acids, grease, oil, etc. 318F Stonhard Co.

Gasket Cutter.....Bulletin 140 describes Garlock's latest gasket cutter. Versatile tool cuts round gaskets from asbestos, rubber, cork or fiber sheets. Known as the "B" set, it's fine tool. 318G Garlock Packing Co.

Hooks.....Rugged, flexible hand-tool that works around corners and obstructions to remove old packing from stuffing boxes. All steel, tempered steel corkscrew bit, six sizes. Dura Hook Bulletin CED1. 318H Durametallic Corp.

Lubricating Systems.....2 p. service instruction sheet provides information and operating instructions for built-in "One-Shot" lubricating systems. Request instruction sheet on KI lubricators. 318I Bijur Lubricating Corp.

Lubrication Systems....."Spray Valve Panels" are designed to spray-lubricate bull gears, girth gears such as on grinding mills & kilns, & other spur on herringbone gear trains. Bulletin No. 26-R. 318J Farval Corp.

Lubrication Systems.....Accumatic prevents application of wrong lubricant; seals against damaging dirt; no parts neglected; eliminates point-by-point lubrication methods. Catalog. 318K Stewart-Warner Corp.

Lubrication Systems.....Lubricates any bearing on any machine with one of three types of fittings: mist fittings, spray fittings, condensing fittings. Full details in Oil-Mist catalog. 318L Stewart-Warner.

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Lubrication Systems.....Alemite manufactures lubrication equipment, spray pump equipment, hydraulic hose and couplings. Lubrication fittings, pumps and guns. Catalogs, information.

319A Stewart-Warner Corp.

Lubrication Systems.....Modern Alemite Barrel Pump does the job much faster—at less cost. Save 95 man-hours for every 400-lb. drum of lubricant used. "5 Plans for Better Lubrication."

319B Stewart-Warner Corp.

Lubricators.....2 p. service instruction sheet gives detailed service instructions & operating information on high capacity spring discharge piston pump lubricators. Designated as Type D Lubricators.

319C Bijur Lubricating Corp.

Lubricators.....Designed to safeguard your expensive machinery with positive force feed lubrication. Choice of models to meet any need, with fully adjustable pumping rate. Details in complete catalog.

319D Manzel Div.

Lubricators, Automatic.....Bulletin describes detailed planning of all systems and their many applications to a wide range of machinery. Tells how to obtain best results from any system. Bulletin 4A.

319E Bijur Lubricating Corp.

Lubricators, Conveyor.....8-page catalog describes automatic conveyor lubricators. Description deals with four fundamental improvements in one series and three in another. Includes exploded view.

319F J. N. Fauver Co.

Maintenance.....6 p. folder explains how company's specialized materials, such as liquid and plastic roof resurfacers, effectively and economically increase the value of buildings. Cover material.

319G Stonhard Co.

Maintenance Materials.....Descriptive folder for plant engineers and maintenance men covers wide range of industrial maintenance problems. Covers undercoats, sealers, cements, roofing comp'ds.

319H Borden Co.

Maintenance Products.....Complete Skyco line of industrial maintenance products is described in a catalog now available. Includes cleaning and coating materials used in plants.

319I Skybryte Co.

Manipulator, Tubing.....An external manipulator for tubing applies pressure externally on a flexible tube, producing a continuous metered flow of liquids as low as 0.1 cc. per day. TD 1269.

319J U. S. Industrial Chem. Co.

Metallizing, Repair.....How you can spray molten metals onto a base surface to build up worn mechanical equipment, apply hard-wearing surfaces, correct surface defects is told in bulletin.

319K Metalweld, Inc.

Putty, Epoxy-Resin.....Bulletin 11 tells how the A2 series of aluminum filled epoxy resin compounds are used for repair and maintenance where stable, non-shrinking, non-flammable putty is needed.

319L Smooth-On Mfg. Co.

Repair Kit, Emergency.....Kit for repairing tanks, pipes, pumps, valves, flanges, air ducts, and miscellaneous machinery used by oil, chemical, mining and other industries. See Bulletin.

319M Devcon Corp.

Reproduction Materials.....Kodagraph reproduction materials for techniques, savings, new standards of quality—in drawing and document reproduction. Booklet on Kodagraph materials.

319N Eastman Kodak Co.

Rods, Cleaning.....Bulletin gives details and features of cleaning rod for cleaning the inside of gage glasses. Illustrated with engineering drawings. Request copy of Data Unit #293.

319O Jerguson Gage & Valve Co.

Saw, Masonry.....2 hp. masonry saw with sta-level cutting head and h/o control wheel plus 30 other outstanding features is described in Brochure No. 2017. Available on request.

319P Clipper Mfg. Co.

Splices.....4 p. booklet contains instructions & application information for the new "Scotchcast" brand splicing kit 90-B1. Describes advantages, electrical & physical properties, etc.

319Q Minn. Mining & Mfg. Co.

Tool Sets.....Company assembles special tool sets for a wide range of industries including automotive, aviation, construction, chemical, petroleum and railroad. Request your copy of Catalog V.

319R Snap-On Tools Corp.

Tools.....Company offers free, complete catalog of industrial wrenches and hand tools, including ratchet wrenches and Torco-meters. Company also advises on special tool problems.

319S Snap-On Tools Corp.

Tools, Cutting.....Catalog describes aluminum oxide cutting metals, tool tips, throw-away inserts, cylinders and other machine turning and cutting tools. Includes technical data and applications.

319T Metal Carbides Corp.

Tools, Hand.....Company offers a precision hand tool to prepare pump stuffing boxes for mechanical seal installation. Assures proper mechanical seal performance. Request information.

319U Byron Jackson Co.

Tools, Hand.....Catalog covers Parker hand tools—tube cutters, flangers, benders—also bench mounted benders, power flarer, straight thread tapping, etc. Send for a copy of Catalog 1140.

319V Parker Appliance Co.

Welding.....Bulletin F-1076, 4 p., describes development and application of company's Unionarc Welding process in industry. Semiautomatic process uses continuously fed bare wire.

319W Linde Air Products Co.

Welding Necks.....Based on actual material and labor costs, a new 6-page report frankly appraises comparative costs of seamless forged long welding necks and built-up for pressure vessels.

319X Lenape Hydraul. Pressing Co.

Welding Outlets.....Bulletin Cp-1-57 describes Couplet line of strong, easy-to-install branch connections for tanks, pressure vessels and pipelines. They function as universal outlet connections.

319Y H. K. Porter Co.

Welding Procedures.....170 p. Pocket Data Book features simplified welding procedures for every base metal. Guide to improved torch and metallic arc welding, brazing and soldering. Available.

319Z Eutectic Welding Alloys Corp.

Welds.....Company offers bulletin describing EB Weld Insert, its composition, available types, dimensions, procedure for welding pipes with EB Weld Insert & Process; features & specifications.

319AA Arcos Corp.

Winches.....You can lift heavy loads quickly and easily with S-A hand and motor winches, designed for dependable, trouble-free lifting power. Types & sizes in stock to meet your job needs. Cat. 853.

319BB Stephens-Adamson Mfg. Co.

Wrenches & Hand Tools, Industrial.....Comprehensive catalog covers Snap-On Tools' complete line of wrenches and hand tools for production and maintenance. Request 112 p. Catalog 54-1.

319CC Snap-On Tools Corp.

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Blanket, Insulation

Resistant to 2,300 F.
(320A)

... Formed from extremely fine, closely intertwined aluminum silicate fibers, Fiberfrax ceramic blanket keeps its form and properties despite temperatures as high as 2,300 F. Blankets may be used on high-pressure

steam lines, diesel exhausts, gas turbines and furnace ducts. Also they can be used as insulation lining in alloy and refractory high temperature furnaces.—*Carborundum Co., Niagara Falls, N. Y.*

Cloth, Wire

Woven from corrosion-resistant titanium.
(320B)

... Corrosion-resistant titanium wire cloth is being manufactured on production basis. Cloth is used in filtering assemblies, catalysts, screens and

other equipment. In pulp and paper industry, titanium shows excellent resistance to bleaches.—*Cambridge Wire Cloth Co., Cambridge, Md.*

Fabrics, Coated

Teflon-on-glass. (320C)

... Teflon-coated glass fabrics offer unusual heat resistance, mechanical strength and extreme toughness. Un-

der heat and pressure, chemically inert fabrics have low flow.—*Shamban Engineering Co., Culver City, Calif.*

Fasteners, Rivet

Seal themselves automatically against leaks.
(320D)

... Unique rivet fasteners which seal themselves automatically against fluid or air leaks without caulking or sealing agents are available in quantity. Fluid-tight rivet attains its seal from

a soft aluminum jacket or sleeve around its shank which extrudes or flows when rivet is expanded during driving.—*Pastushin Aviation Corp., Los Angeles 45, Calif.*

Fastenings, Insulation

Expand and contract.
(320E)

... Breather Springs in band fastenings of insulation provide two-way protection. Danger of damage during installation is much less because when Springs start to stretch, applicator

knows his hands are tight enough. Once installed, springs expand and contract to allow for expansion and contraction of hot tanks, vessels.—*Techalloy Co., Inc., Rahns, Pa.*

Felts, Shrank Orlon

Commercially available.
(320F)

... Felted Orlon materials are ready for industrial wet and dry filtration applications and other uses where complete felt structure is preferred. Shrank Orlon felts are suitable for

use in applications which formerly used woven Orlon structures based on continuous filament yarn, which is no longer available.—*American Felt Co., Glenville, Conn.*

Felts, Synthetic

Offered in same wide range of constructions and dimensions as wool felts.
(320G)

... Feutron felts—felt-like structure consisting of 100% of synthetic fibers interlocked mechanically without any binder—are said to be first truly non-woven synthetic fabrics consisting of fibers only. Three basic types are commercially available: mechanically interlocked felt with woven-fabric foundation; mechanically interlocked felt without any weave; felt with fibers interlocked both by mechanical means and by shrinkage of fibers. Available range of constructions and dimensions covers widths up to 80 in. and thicknesses from 0.015 to 1.000 in. Weight varies from 2 oz. to 6 lb./sq. yd. Potential applications include: filtration (wet and dry), seals for high-temperature bearings, reinforcement of plastics, insulation (thermal and acoustical).—*American Felt Co., Glenville, Conn.*

**Gasketing Material**

Has outstanding properties and definite economy.
(320H)

... Exceptional thermal and chemical properties of Teflon are available in Teflon-Vistex gasketing material which consists of plies of mechanically interlocked synthetic fiber felt impregnated with Teflon resin. Two types of

material are available—Type W, a tough, strong, general purpose material; Type NS, a moldable material for applications involving irregular flange surfaces and pressures.—*American Felt Co., Glenville, Conn.*

Gasketing Material

More flexible and durable, easier to use.
(321A)

... Sharp bending won't cause asbestos-fiber gasketing materials to pipe or crack. Their unusual compressibility provides perfect sealing

under lower bolting pressures than are required for hard compressed asbestos sheets.—*Armstrong Cork Co., Lancaster, Pa.*

Grating, Non-Skid

Abrasive grains prevent skidding.
(321B)

... Relgrit grating contains non-absorbent abrasive baked into V-shaped openings along top edges of grating bars. Permanent, non-skid surface produced by grains is effective

whether wet or dry, muddy or oil soaked. Relgrit resists commonly used acids, alkalis, chemicals; is more wear resistant than steel.—*Reliance Steel Products Co., McKeesport, Pa.*

Gratings

Stainless steel. (321C)

... Gratings for stair treads, catwalks are made of stainless steel for corrosive environments. Type 304 bar stock,

2-in. wide by $\frac{3}{16}$ -in. thick, is used.—*Irving Subway Grating Co., Inc., Long Island City, N. Y.*

Insulation, Fibrous

Of volcanic origin.
(321D)

... Basaltwool fibrous material, made from Basalt volcanic rock, has remarkable acoustic and heat insulating properties. Fibers about 20 microns in dia. by 18 to 36 in. long permit

material to be used in mat form without use of binder. Basaltwool won't burn or support combustion.—*Thermo-Sound Products, Div. of Kittell-Lacy, Inc., El Monte, Calif.*

Insulation, Molded

Pipe or block form for use to 1,200 F. (321E)

... Thermasil molded pipe and block insulation is strong, light, hard, chemically stable, nonflammable, unaffected by water or excessive water vapor.

Thermal conductivity ranges from 0.31 at 100 F. to 0.51 at 600 F., Btu./sq. ft.) (hr.) (°F./in.).—*Ehret Magnesia Mfg. Co., Valley Forge, Pa.*

Insulation, Pipe

Withstands 1,350 F.
(321F)

... Molded Kaytherm insulation for steam and hot process piping withstands temperatures to 1,350 F. It's

flame resistant, chemically inert, insoluble in water.—*Keasbey & Mattison Co., Ambler, Pa.*

Insulation, Sheet

Applies directly to vessels with cement. (321G)

... Armaflex foamed-plastic insulation is available in sheet form for use on large tanks of all shapes, irregular vessels and oversize piping. Sheet can be applied directly to clean surfaces

with cement, eliminating need for conventional mechanical supports. Material forms permanent barrier to passage of air and moisture.—*Armstrong Cork Co., Lancaster, Pa.*

Insulation, Structural

Prevents building collapse in case of fire.
(321H)

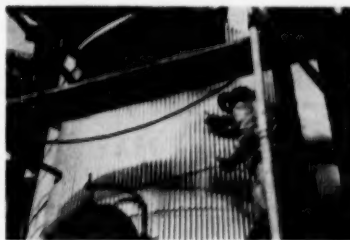
... Kaylo-20 protects heavy structural steel framework against ravaging fire. Here's how this insulation performed under fire test: Sections of heavy I-beams, encased in Kaylo-20 insulation, were subjected to flames of oil fire for three hours. Heat penetrating Kaylo

insulation was measured with thermocouples located in holes drilled in beams. External temperatures around beams registered 1,980 F. Within Kaylo covering, top temperature was only 660 F.—*Owens Illinois, Toledo, Ohio.*

Jacket, Aluminum

Deeply corrugated for tanks, vessels.
(321I)

... Deep-corrugated aluminum jacketing is designed for installation on tanks, towers, vessels. Integral moisture barrier, applied at factory, completely eliminates corrosion of jacket from within. Also, moisture barrier overcomes need for costly felt wrapping used formerly. Jacketing is available with $1\frac{1}{2}$ or 2½-in. corrugation.—*Childers Mfg. Co., Jacketing Sales Div., Houston, Tex.*

**Ladder, Plastic**

Has qualities of metal and wooden ladders.
(321J)

... Sandwich construction of glass fiber and Laminac polyester resin are used in lightweight ladder which offers superior strength-to-weight ratio

of lightweight metal ladders combined with non-conducting qualities of dry wood ladders.—*Putnam Rolling Ladder Co., Inc., New York, N. Y.*

Laminates, Metal

Layers of metals permanently bonded. (322A)

... Metal laminates are combinations of two or three metals metallurgically bonded together to form one permanent sandwich. Laminates offer phy-

sical, chemical and mechanical properties which are impossible to get in a single metal.—*Bridgeport Brass Co., Bridgeport 2, Conn.*

Lining, Plastic

Ideal for reactors, pipe, hoppers. (322B)

... Kel-F plastic laminate can be cemented to any surface of almost any contour, even the largest vessels where other materials and dispersions fail. Non-toxic, non-contaminating plastic fused into glass cloth has a tempera-

ture range of -100 to +350 F. It presents non-wetting, non-sticking surface with excellent abrasive resistance. Lining resists attack by most chemicals, acids, alkalis.—*U. S. Gas-ket Co., Camden 1, N. J.*

Panel, Industrial

Cuts plant construction cost. (322C)

... Consisting of 2-in. layer of Foam-glas insulation sandwiched between 2-in. slabs of concrete, industrial panels saved \$162,000 over conventional construction on total area of 180,000 sq. ft. at Irving Pulp & Paper's St. John (N. B.) plant. If equipment must be moved in or out of building at a later date, panels can be removed temporarily to allow entry.—*Pittsburgh Corning Corp., Pittsburgh 22, Pa.*



Plate, Tread

Non-skid. (322D)

... Non-skid tread plate of aluminum has fused aluminum oxide abrasive on one surface of plate. Layer doesn't

separate from plate during welding.—*Aluminum Co. of America, Pittsburgh 19, Pa.*

Steel Drums, Lined

Lining centrifugally sprayed. (322E)

... Linings for interior steel shipping drums can be applied by centrifugal force. Fully automatic mechanism is capable of achieving unusually high degree of film thickness uniformity

through entire container. Spraying of innercoat drum linings makes possible use of lining materials with substantially lower solvent content.—*Rheem Mfg. Co., Chicago 29, Ill.*

Tape, Heating

Uses silicone to resist many environments. (322F)

... Need for more flexible and wear-resistant electric heating tapes that also may be made into blankets has led to development of silicone rubber tape. Tape is made of finely stranded resistance wires insulated with braided

fiber-glass yarns and knitted into flat tapes. Tape is then embedded completely in silicone rubber. Temperature limit for silicone rubber tape is 450 F.—*Briscoe Mfg. Co., Columbus 3, Ohio.*

Tape, Teflon

Glass-reinforced variety of cementable type. (322G)

... Cementable Teflon tape is available in glass reinforced form. Compared to unsupported variety, new tape has greater abrasive resistance,

higher tensile strength, lower cold flow, improved dimensional stability.—*Continental-Diamond Fibre Corp., Newark, Del.*

Teflon, Cementable

Bonded with standard adhesives. (322H)

... Teflon, in sheets and tapes, can be cemented to most materials by using standard commercial adhesives. Good bond strengths are obtained between cementable Teflon and aluminum, mild steel, wood and regular Teflon. It can be used with ease as a lining and covering for tanks, piping, fittings, rolls and many other metallic and non-metallic surfaces.—*John L. Dore', Houston, Tex.*



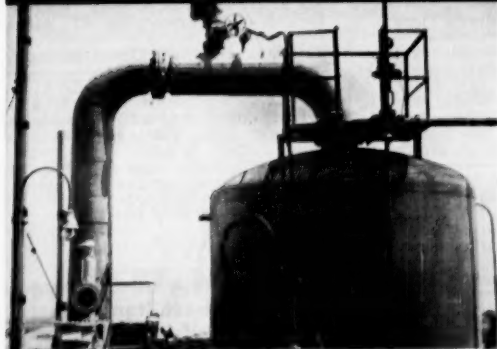
Tread, Stair

Slip-proof. (322I)

... Precision-cast aluminum stair tread combines safer footing for industrial workers with long-term main-

tenance savings for plant managers.—*Aluminum Co. of America, Pittsburgh 19, Pa.*

**Life of vapor line on acid
stripping tower at
NATIONAL PETRO-CHEMICALS.....**



UNDER THE INSULATION YOU SEE HERE is the line of Revere Deoxidized Copper which has been in uninterrupted service for over a year, and as of this writing continues to serve. Line was fabricated by MATT. CORCORAN COMPANY, Louisville 13, Ky.

increased
more than
800%
by switching to
COPPER

**Copper line still going strong after
12 months without causing a single
stripping tower shutdown!**

At left is an unretouched photograph of a former overhead vapor line, 18" in diameter, that started to leak after 3 weeks on an acid stripping tower of an ethyl alcohol unit at National Petro-Chemicals Corp., Tuscola, Illinois.

This 10 gauge corroded line was then replaced by another line of a different metal. This lasted 6 weeks, then another failure. Such breakdowns not only are troublesome, they are mighty costly, too.

Original tests of the bubble-cap stripping tower, which removes dilute sulfuric acid from alcohol, showed that vapor from top of tower should contain only alcohol, some hydrocarbons, and SO₂. But after two shutdowns due to failure of the metals used, a re-examination disclosed that throughput was running slightly higher than anticipated. As a result there was a carry-over of some concentrated sulfuric acid. A line was then ordered, fabricated from Revere Deoxidized Copper, and placed in service. Copper could be used safely as there was no air in the system.

This copper line has now been in service over a year without failing and the stripping tower operation remains uninterrupted.

Another example of selecting the right metal, in the right form to do the best possible job with the greatest economy . . . whether it be copper, brass or aluminum or any one of their alloys. Perhaps Revere can help you realize similar savings due to superior performance of its metals.

REVERE COPPER AND BRASS INCORPORATED

*Founded by Paul Revere in 1801
230 Park Avenue, New York 17, N. Y.*

Mills: Rome, N. Y.; Baltimore, Md.; Chicago, Clinton and Joliet, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Brooklyn, N. Y.; Newport, Ark.; Ft. Calhoun, Neb. Sales Offices in Principal Cities, Distributors Everywhere.



New Materials of Construction

1957 INVENTORY

Literature Available

NEW MATERIALS OF CONSTRUCTION

Adhesive......Newly developed, AV-24600 can be used for laminating urethane foam to many types of surfaces. Applied by conventional methods; high strength and flexibility. Write for details.
324A Compo Chemical Co.

Adhesive......For a neoprene-to-metal bonding adhesive: function, physical properties, composition application by brush, spray or dip, agitation, advantages in terms of corrosion resistance, strength.
324B Harwick Standard Chem. Co.

Adhesive......A polyvinyl acetate resin emulsion adhesive is designed for high-speed case and carton sealing. Can be changed without shutting down machine to clean glue box. TD 1281.
35-Gb *U. S. Industrial Chem. Co.

Adhesive Pipe Sealing......4 p. describes the application technique and advantages of hot pour plastic base sewer pipe jointing compound. Flexibility, hardness and adhesion achieved are discussed in detail.
324D K. T. Snyder Co.

Adhesives......Titled "Adhesives and Coatings from Vinyl Ether Polymers and Copolymers", data sheet P-123 discusses the applications of a series of related polymers in the compounding of formulations.
324E Gen. Aniline & Film Corp.

Adhesives......Company offers technical bulletin on adhesives for "Mylar" polyester film. Contains complete descriptions with tables of six adhesives for "Mylar". Request your copy of this bulletin.
324F E. L. du Pont de Nemours.

Adhesives......Industrial materials selection chart lists application and descriptive information including data on adhesives coating and sealers. Six sections cover reclaim rubber, synthetic rubber, latices, others.
324G Miracle Adhesive Corp.

Adhesives......Polyvinyl acetate resin emulsion adhesive E-2131, whose compatibility with dextrine adhesives allows substantial cuts in costs of packaging adhesives, is described in a laboratory report.
324H Paisley Products, Inc.

Adhesives......Adhesives, protective coatings and sealers are described in a 4 p. folder, Bulletin 650A. Recommended use, method of application and properties of eight typical products are tabulated.
324I Raybestos-Manhattan, Inc.

Adhesives......8-p. reprint of technical paper, "Use of Adhesives With Reinforced Plastics", originally given before SPI. Data on effect of temperature on tensile shear strengths, properties of rigid foams, etc.
324J Rubber & Asbestos Corp.

Adhesives......Adhesives for labels feature resin emulsion glue which penetrates silicone layer to bond on the glass surface. Also controlled tacking in clear microthin films. Write for TD 1260.
324K U. S. Industrial Chem. Co.

Adhesives, Bonding......Bulletin covers function, composition, properties, consistency, application and advantages of Thixon NB rubber-to-metal bonding adhesive. Request your copy of Bulletin 03-9-4-9-56.
324L Harwick Standard Chem. Co.

Adhesives, Bonding......Bulletin presents function, composition, properties (color, odor, toxicity, typical specific gravity, typical lbs./gal.), application. For complete details. see Bulletin 13-121-4-9-56.
324M Harwick Standard Chem. Co.

Adhesives, Epoxy......2 p. properties chart on company's Epibond and Epicast adhesives and pastes gives service temperatures, shear strengths, bond resistances, typical applications.
324N Furane Plastics Inc.

Alloys......Hastelloy alloy B is resistant to hydrogen chloride gas at high temperatures, wet or dry. Has strength properties comparable to high-alloy steel. Request Hastelloy Booklet for details.
324O Haynes Stellite Co.

Alloys......Process equipment protected with Hastelloy Alloy C can be used to handle acids, fats, oils, or other corrosive materials. If you have a severe corrosive condition, send for Booklet.
324P Haynes Stellite Co.

Alloys......Hastelloy alloy D has excellent resistance to sulphuric acid in all concentrations and at temperatures up to the boiling point. Announces availability of a booklet on Hastelloy products.
324Q Haynes Stellite Co.

Alloys......Monthly publication "Haynes Alloys Digest" includes articles on vacuum-melted alloy, service in handling molten glass, production of high-quality alloys, etc. For details, see Vol. 7, No. 9.
324R Haynes Stellite Co.

Alloys, Brazing......How Microbraz alloys are used to join stainless steels and special alloys is discussed in Catalog Form 8D-23. All Microbraz alloys resist tremendous heat and corrosion.
324S Wall Colmonoy Corp.

Alloys, Casting......Comprehensive wall chart details information about 37 standard brass, bronze and nickel silver casting alloys. Includes various specifications and percentage compositions.
324T Henning Bros. & Smith.

Alloys, Corrosion Resistant......Carpenter Stainless No. 20 and No. 20Cb Handbook contains physical, corrosion resistance and fabrication data on these super-corrosion resistant alloys. Free.
324U Carpenter Steel Co.

Alloys, Corrosion-Resistant......Have excellent resistance to hot mineral acids, strongly oxidizing salts, powerful gaseous oxidants, and combinations of these media. "Hastelloy Corrosion-Resistant Alloys."
324V Haynes Stellite Co.

Alloys, Corrosion Resistant......Booklet on Hastelloy alloys B, C, D, and F now available. Describes chemical compositions, physical, mechanical and high temperature properties of the alloys.
324W Haynes Stellite Co.

Alloys, Corrosion Resistant......A recently published booklet tells about the corrosion resistant characteristics of Hastelloy alloys like Hastelloy C, exceptionally resistant to chlorine compounds.
337 *Haynes Stellite Co.

Alloys, Hard-Facing......Hard-facing alloys in coils for fast, economical protection through mechanized deposition. Available in drawn tube wire form for trouble-free feeding. Request Bulletin F-30030.
324Y Haynes Stellite Co.

Alloys, Haynes......Booklet gives data on machinery parts made of Haynes alloys. Includes chemical composition, physical and mechanical properties, corrosion resistance and machining.
324Z Haynes Stellite Co.

Alloys, High Temperature......Users of tubing and piping at elevated pressures and temperatures will find up-to-date information about B & W Croloy 2½ and Croloy 1½ in Bulletins 145 and 152.
324AA Babcock & Wilcox Co.

Alloy, Heat-Resistant......High temperature strength data on B & W Croloy 18-8 Ti (AISI Type 321) for long-time service at elevated temperatures is presented in Alloy sales letter 288.
324BB Babcock & Wilcox Co.

Alloys, High-Temperature......Physical properties, applications and shape availability of four alloys are listed in booklet, Dicalloy, K42B, Refractaloy 26 and Refractaloy 70 are covered in DB-52-250.
324CC Westinghouse Electric Corp.

Alloys, Nickel-Base......A revised 104 p. edition of "Hastelloy Corrosion-Resistant Alloys" is now available. Gives information on chemical compositions, physical, high-temperature properties.
324DD Haynes Stellite Co.

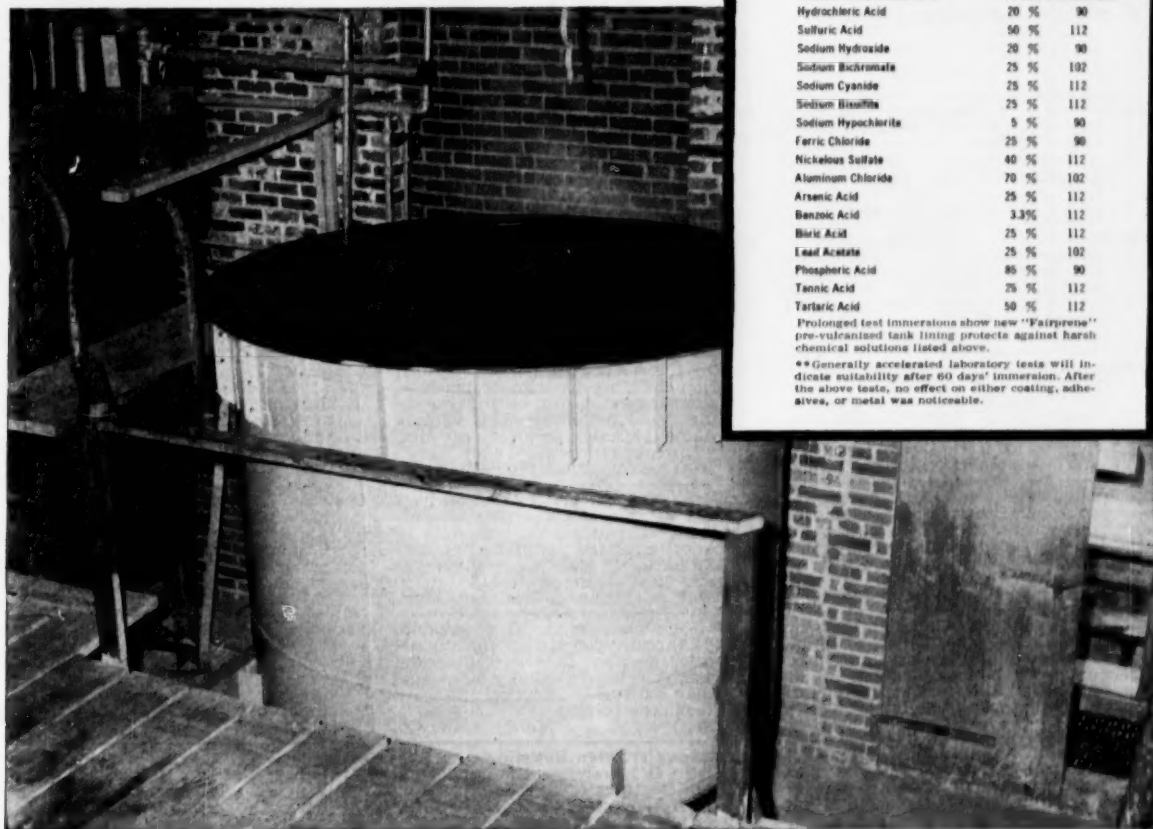
Aluminum......Process Industry applications of aluminum for producing everything from beer to bomb shells are analyzed in 80 p. book, "Process Industries Applications of Alcoa Aluminum."
324EE Aluminum Co. of America.

Aluminum......"Alcoa Aluminum Handbook" presents data on aluminum alloys and mill products in a tabular form. Deals with wrought alloys; sheet & plate; wire, rod & bar; extrusions; tube & pipe; etc.
324FF Aluminum Co. of America.

* From advertisement, this issue

➔ Want more information on any of these items? Just write its code number on one of the postcards inside the back cover, then mail it to us. It's that easy now.

NEW—protective lining sheet that needs no vulcanizing



IMMERSION TEST TABLE Steel Panels Covered with "Fairprene" in Corrosive Solutions at 212°F.

Immersion Medium	Conc.	No. Days**
Hydrochloric Acid	20 %	90
Sulfuric Acid	50 %	112
Sodium Hydroxide	20 %	90
Sodium Bicarbonate	25 %	102
Sodium Cyanide	25 %	112
Sodium Bisulfite	25 %	112
Sodium Hypochlorite	5 %	90
Ferric Chloride	25 %	90
Nickelous Sulfate	40 %	112
Aluminum Chloride	70 %	102
Arsenic Acid	25 %	112
Benzoic Acid	3.3%	112
Boric Acid	25 %	112
Lead Acetate	25 %	102
Phosphoric Acid	86 %	90
Tannic Acid	25 %	112
Tartaric Acid	50 %	112

Prolonged test immersions show new "Fairprene" pre-vulcanized tank lining protects against harsh chemical solutions listed above.

**Generally accelerated laboratory tests will indicate suitability after 60 days' immersion. After the above tests, no effect on either coating, adhesive, or metal was noticeable.

Economical new pre-cured Fairprene® lining material provides superior protection against hot corrosive solutions

Because Du Pont's new "Fairprene" protective lining material is pre-vulcanized, Livingstone Coating Corp., custom applicators, were able to line the above tank on location. "Fairprene" protects against chemical action that would corrode the tank and contaminate the solution it contains at North Carolina Finishing Co., Salisbury, N. C.

"Fairprene" sheet stock is made spe-

cifically for protective lining which offers outstanding resistance to harsh chemicals, ozone, oxidation, aging and abrasion. "Fairprene" shows superior heat resistance—can be used at temperatures as high as 200°F. Lining costs are reduced because "Fairprene" is pre-cured. It needs no special storage or shipping conditions, does not deteriorate with age and can be applied on location to

minimize equipment downtime. Du Pont "Fairprene" lining is offered in a complete system of materials including sheet (rolls 50" wide and 1/4" thick), tape, cements, activators and putty.

Find out more about the low-cost protection you can give your equipment with "Fairprene" protective lining material. Mail the coupon.

DU PONT INDUSTRIAL COATED FABRICS SHEET STOCKS • CEMENTS



BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

"Fairprene" is Du Pont's registered trademark for its coated fabrics, sheet stocks and cements.

E. I. du Pont de Nemours & Co. (Inc.)
Fabrics Division, CE-711, Wilmington 98, Del.
Please send me your booklet on "Fairprene" pre-vulcanized protective lining.

Name _____ Position _____

Company _____

Address _____

City _____ State _____

New Materials of Construction

1957 INVENTORY

Available Literature

Aluminum—
Coatings

Aluminum....."Reynolds Aluminum Digest", a 32 page monthly publication contains reviews of articles related to aluminum published the preceding 30-60 days. Contains summary of related current events.
326A Reynolds Metals Co.

Aluminum.....Facts and figures on applications of aluminum construction in chemical industry appear in brochure, "Reynolds Aluminum Tanks and Vessels." Resists strong corrosive action.
326B Reynolds Metals Co.

Aluminum.....New bulletin "Aluminum in Stock at Ryerson" is company's first publication covering its new stock of Reynolds aluminum. Included is information on aluminum plates, sheets, etc.
326C Joseph T. Ryerson & Son.

Aluminum Bar Stock.....Illustrated 8 p. technical brochure "Hollow Aluminum Bar Stock" discusses tolerances, mechanical properties, and applications of the hollow machining stock. Request your copy.
326D Harvey Aluminum.

Aluminum Corrosion.....How you can determine the corrosion resistance of aluminum when designing process plants and equipment is discussed in brochure entitled "Corrosion Keys to Aluminum."
326E Reynolds Metals Co.

Aluminum, Heat Exchanger Tubes.....Alcoa Aluminum for heat exchanger tubes is low in cost, resists oxidation and other chemical attack, excellent thermal conductivity. Booklet AD-186.
326F Aluminum Co. of America.

Asbestos.....Selecting asbestos for any application or temperature range is now simplified by 16 p. reference manual. Covers cloth, tape, tubing, lap, roving, cord, wick and rope, each shown with uses and photos.
326G Union Asbestos Co.

Asphalts.....8 p. booklet describes production and distribution facilities for all types of paving asphalts and emulsions, plus various types of emulsified asphalts for the construction industry.
326H Amer. Bitum. & Asphalt Co.

Bags, Film.....Bulletin describes film bags made of Bakelite polyethylene. Resists abrasion & tearing & tends to act as a resilient cushion protecting each unit from shipping shocks. Request Bulletin #9015.
326I Bakelite Co.

Bars, Stainless.....28 page booklet, Allegheny Stainless Bars, tells of alloy selection, fabrication, annealing, heat treatment, corrosion resistance and weight of stainless steel bars.
331b *Allegheny Ludlum Steel.

Bearing Materials.....Chart shows complete chemical, mechanical, and work characteristics of a wide range of sintered bearing materials. Best material for most applications can be selected.
326K Bound Brook Oil-Less Bear.

Binders, Latex.....Lytron 680 latex binder for both exterior and interior surfaces is described in 20-page bulletin. Material weathers well, forms strong durable film quickly in variety of climates.
326L Monsanto Chemical Co.

Boron Carbide.....Data book, "Handbook on Boron Carbide & Elemental Boron" is a reference containing both fundamental data & practical information. Useful to those interested in atomic energy etc.
326M Norton Co.

Castables, Insulating.....Alundum 33-I insulating castable mixes and pours like concrete . . . protects up to 3300°F. It is easy to install and to store. Company makes particulars available upon request.
326N Norton Co.

Castings.....Craftsmen in pattern shop, molding department, machine shop, inspection and testing departments all contribute skills to produce intricate, accurate castings. "Kutztown Review".
326O Kutztown Fndry & Mach.

Castings, Alloy.....Manual on heat and corrosion resisting castings contains information on principles of alloy composition properties and limitations, stabilizing influences and heat treatment, etc.
326P Michigan-Standard Alloy.

Castings, Aluminum.....If you require parts with demanding metallurgical properties, close tolerances and intricacy, Bean's foundry techniques may provide a solution. Request technical booklet.
326Q Morris Bean Co.

Castings, Corrosion Resisting.....Bulletin C/1 describes the application and features of corrosion resisting high alloy steel castings. Facilities enable solution of special corrosion problems.
326R Duralloy Co.

Castings, Heat Resistant.....Information on the properties of heat resistant high alloys is available in folder of data sheets. Includes application, design and fabricating information.
326S Alloy Casting Institute.

Castings, High Alloy.....High alloy castings to order, large, small, special shapes, corrosion resistant, heat resistant and abrasion resistant. Melt and finishing controlled and tested. Bul. 3354-G.
326T Duralloy Co.

Castings, High Alloy.....Bulletin 3150-G gives preliminary information on company's high-alloy castings made to fit your specific requirements. Heat resistant, corrosion-resistant.
326U Duralloy Co.

Castings, Sigma Blade.....Company offers bulletin covering story behind the difficult casting job of a 1500 lb. corrosion resistant, dimensionally accurate, stainless steel sigma blade. Copper Alloy AKH#4.
326V Cooper Alloy Corp.

Castings, Stainless Steel.....32 p. of valuable and complete data on stainless castings: analyses, properties, technical data on handling and heat treatment, typical applications, how to order, etc.
326W Allegheny Ludlum Steel Corp.

Castings, Stainless Steel.....Second edition of 28-page booklet gives detailed information on corrosion and heat resisting stainless steel castings. Physical properties and chemical compositions given.
326X Allegheny Ludlum Steel Corp.

Ceilings.....Bulletin describes Electra Luminus Ceiling package, made with Bakelite rigid vinyl sheet. Specially developed for light diffusion, resists color change, dust and moisture. Bulletin #9012.
326Y Bakelite Co.

Cements.....Bulletin describes Crystolon cement . . . a fine-grained silicon carbide cement, sized 30 mesh and finer, with the addition of an air-setting constituent. Complete details in Bulletin CP7.4.
326Z Norton Co.

Cements.....8 p. folder describes Super #3000 Refractory Cement, a heavy duty brick bonding and patching mortar. Includes cases concerning product's application in high temperature work.
326AA Refractory & Insulation Corp.

Cements, Air Setting.....Bulletin describes use of Crystolon RC 2351 Air Setting Cement. Tells how to mix and apply, either by hand or by spraying, this highly refractory cement. Request your copy.
326BB Norton Co.

Cements, Insulating.....Eagle-Picher One-Cote cement insulates, protects, finishes in one quick application. Cement is clean, easy to handle—provides a smooth, light-reflectant surface. Request sample.
326CC Eagle-Picher Co.

Ceramics.....Covering a full line of industrial ceramics, 20 p. catalog includes selection chart with mechanical, physical and electrical properties for each. Tips on designing with ceramics.
326DD Star Porcelain Co.

Ceramics, Chemical.....Chemical ceramics will resist all acids, alkalis and all solvents (except hydrofluoric acid and hot caustics). White chemical porcelain is especially good. Bul. C-5.
326EE U. E. Stoneware Co.

Coater, Spray Thermoplastic.....Application of thermoplastic resin powders to metal parts is discussed in catalog sheet. Dual-purpose unit provides for both spray and fluidized coating techniques.
326FF American Agile Corp.

Coating Systems, Protective.....Uclon coating systems give chemical engineers effective weapons against corrosion. Systems based on neoprene coatings for air dry or force dry application. Data sheets.
326GG Metal & Thermit Corp.

Coatings.....Charts give properties of coatings ingredients, including solvents, couplers, diluents, plasticizers. Properties covered include relative evaporation rate, median specific gravity, blush resistance.
326HH Carbide & Carbon Chem.

Coatings.....Company offers "Comparative Coatings Chart" illustrating the various resistances obtainable in comparing coatings made on various bases. Includes application data, properties, etc.
326II J. Landau Co.

* From advertisement, this issue



STAINLESS STEEL produced the way you want it by Carlson

Only at Carlson can you buy so many grades of stainless steel in the wide variety of shapes and sizes illustrated here. We regularly process such complete bill-of-material orders. Trained Carlson men, with years of experience and practical knowledge, are determined to give you the best and most efficient service possible.

**When you need stainless plate . . .
Carlson gives you what you want
when you want it!**

Write for CARLSON'S WEEKLY STOCK LIST . . .
your guide to what's available in high-quality
stainless steel.

G.O. CARLSON Inc.

Stainless Steels Exclusively

134A Marshalton Road
Thorndale, Pennsylvania

District Sales Offices in Principal Cities

STAINLESS STEEL PLATE . . . rolled to almost any size or thickness, $\frac{3}{16}$ " and heavier, to meet your individual needs—whether rectangles, circles or special patterns. Substantial tonnage in Types 302, 304, 304-L, 309, 309-S, 310, 316, 316-L, 317, 317-L, 321, 347, 348, 405, 410, 430 and 502- $\frac{1}{2}$ % Mo. is available for prompt delivery. In addition, two precipitation-hardening grades, Types 17-4 PH* and 17-7 PH* are now in production.

STAINLESS STEEL HEADS . . . in Types 304, 304-L, 316 and 316-L are available from stock in ASME and Standard specifications (10" to 72" diameter). A large assortment of dies is available for pressing other types of heads and special sizes can be spun where practical.

STAINLESS STEEL FORGINGS and SPECIAL PATTERNS . . . including tube sheets, flanges, circles, rings, sketch plates and other specialties can be produced to specification on our versatile equipment.

Also STAINLESS STEEL BARS AND SHEETS (No. 1 Finish).

*Trade mark of ARMCO STEEL CORPORATION



PLATES • PLATE PRODUCTS • HEADS • RINGS • CIRCLES • FLANGES • FORGINGS • BARS and SHEETS (No. 1 Finish)

Literature Available

Coatings— Coatings, Protective

Coatings, There are three Norton Rokide coatings: Rokide "A" aluminum oxide, Rokide "ZS" zirconium silicate and Rokide "Z" stabilized zirconia. Proved in such applications as reaction motors.
328A Norton Co.

Coatings, 4 p. discusses company's PVC coatings for protection against corrosion. Pictures and describes six important steps in the procedure for coating parts and assemblies to insure maximum resistance.
328B Quelcor, Inc.

Coatings, Leaflet describes this company's surfacing material for redoing or patching concrete floors. Describes proper method of application for the chemical-resistant material.
328C Stonhard Co.

Coatings, Leaflet explains how to restore and preserve your roof with company's plastic and liquid roof resurfacer. Discusses properties and performance of the resurfacer under different use conditions.
328D Stonhard Co.

Coatings, Aluminum, Company offers new folder describing a new aluminum roof coating, which insulates against heat and cold. Provides solid, durable, weather-tight protection. Request your copy.
328E Stonhard Co.

Coatings, Antiseptic, 1 p. flyer covers applications of what is described as the first effective antiseptic coating on the market. Coating is for products handled by the public but seldom washed.
328F White Chemical Co.

Coatings, Baked, "Use of Baked Coatings in the Oil, Chemical and Processing Industries" describes prevention of corrosion, protection against product contamination and reduction of growth of solids.
328G Plastic Applicators Inc.

Coatings, Ceramic, Bulletin describes Molcote, metallized ceramic coating. Gives details on applications, cleaning and plating, soldering and ordering procedures. Details in Bulletin 1155.
328H Frenchtown Porcelain Co.

Coatings, Dispersion, Advantages of halo fluorocarbon dispersion coatings for corrosion control and contamination prevention described in 4 p. booklet. Gives chemical and physical properties.
328I Minnesota Mining & Mfg. Co.

Coatings, Fluidized, Use of fluidized plastic coatings in corrosion control discussed in special 6 p. report. Discusses mechanism of fluidization, coatings available, cost factors and applications.
328J American Agile Corp.

Coatings & Linings, Bulletin VP-2 describes Unichrome Plastisols, which produce thick, corrosion-resistant vinyl coatings. Bulletin Chem-C-2 describes phenolic coatings for tank linings.
328K Metal & Thermit Corp.

Coatings & Linings, "Plasticap Corrosion Resistant Coating, Rubber-cap Protective Rubber Lining" bulletin describes protection against various kinds of corrosion, abrasion, and rust.
328L Plastic Applicators Inc.

Coatings, Masonry, Insul-Mastic offers six types of coatings which provide economical solutions to many masonry problems. These coatings come in white, clear and colors. Write for information.
328M Insul-Mastic Corp. of Am.

Coatings, Mastic, Insulating mastics with Fire-Retardant insulate a metal surface against reaching 1000 degrees F. for 30 minutes under 2000 degrees F. flame. Longer lasting, stable protection.
328N Insul-Mastic Corp. of Am.

Coatings & Materials, Corrosion Resistant, Celcote engineers have developed a wide range of corrosion-proof linings, bonding cements, bricks, flooring materials and coatings. Cat. G-201.
328O Celcote Co.

Coatings, Neoprene, Use Atlas neoprene coatings to solve these problems: maintenance of ceilings, walls, trenches and structural members, or the protection of vessels, tanks, etc. Bul. 7-N.
328P Atlas Mineral Products.

Coatings, Plastic, Brochure on Ulti-Products covers specifications and uses of complete line of highly specialized corrosion protective plastic coating products. Company makes brochure available.
328Q Corrosion Protective Prods.

Coatings, Plastic, "Plasticap A" data sheet describes baked-on phenol formaldehyde coating for corrosion-resistant tubular goods. Glass-smooth surface protects against corrosion, paraffin.
328R Plastic Applicators Inc.

Coatings, Plastic, Data Sheet "Plasticap B" describes tough, flexible thermo-setting plastic coating for corrosion-resistant tubular goods. Resistant to shock, abrasion, mechanical damage.
328S Plastic Applicators Inc.

Coatings, Plastic, "Plasticap AB" describes baked-on non-laminar composite film combining high temperature properties with corrosion resistance and mechanical strength for tubular goods.
328T Plastic Applicators Inc.

Coatings, Poly-Ply, Poly-Ply is a safe, simple and lasting way to coat, line and repair industrial equipment. It is applied cold. Insul-Mastic Corp. offers full information on this product.
328U Insul-Mastic Corp. of Am.

Coatings, Protective, New Prufcoat vinyl-weld primer P-62 has "formulated-in" safety factor of damp surface tolerance. Superior adhesion. Send for bulletin No 018.
167 Prufcoat Laboratories, Inc.

Coatings, Protective, Amercoat 33 HB, a true high build vinyl coating, resists corrosive chemicals, severe weathering and abrasion at the lowest cost of any leading vinyl. Data and figures.
328W Amercoat Corp.

Coatings, Protective, Amercoat 87, a true vinyl mastic, protects special areas such as rivets and angles from weather and chemicals. Lasting corrosion-resistance with less painting. Details.
328X Amercoat Corp.

Coatings, Protective, "Cold galvanize" existing steel structures with 100% inorganic zinc protective coating. One spray coat protects against weathering exposures to sea air & salt water. Dimetecote Bul.
328Y Amercoat Corp.

Coatings, Protective, Catalog describes Amercoat protective coating systems for corrosion control. Outlines corrosion control services: assistance in selection, help write specifications, etc.
328Z Amercoat Corp.

Coatings, Protective, Bulletin describes how good structural design aids coatings in protecting steel surfaces. Tells how to weld, rivet & use structural materials to avoid creation of corrosion problem areas.
328AA Amercoat Corp.

Coatings, Protective, Barrett Cold Coatings can protect cranes, conveyors, bridges, storage tanks. Offer outstanding resistance to moisture and chemical atmospheres. Particulars, prices, literature.
328BB Barrett Div.

Coatings, Protective, Announces Carbomastic series of protective coatings . . . epoxy-tar coatings with solids content ranging from 85% to 90% and applying at thicknesses up to 10 mils/coat. Bul. 803.
328CC Carboline Co.

Coatings, Protective, Helps you figure cost per sq. ft. per year of service for any coating system. Gives complete details on Phenoline 305 . . . system for longer protection against corrosion. Chart 1005.
328DD Carboline Co.

Coatings, Protective, Series E-900 coatings are high solids modified epoxy formulations which result in toughness, resistance to abrasion and adhesion to practically any clean surface. Bulletin E-900.
328EE Celcote Co.


Coatings, Protective, Leaflet outlines protective coatings designed to improve the appearance, prolong the life, and ease maintenance of large floor areas. Request your copy of 8 p. pamphlet.
328FF Chem. Specialties Mfgs.

Coatings, Protective, Bulletin, 2 p., describes a modified epoxy flooring surface. As a coating for concrete floors, it is said to resist chemical corrosion, wear and impact. Copies are available.
328GG Dittbrener Associates, Inc.

Coatings, Protective, 4 p. leaflet describes coating designed to control the transmission rate of water vapor through any type of building material. How to apply to the interior or exterior surface.
328HH Ellis & Watts Inc.

Coatings, Protective, Special characteristics, advantages and uses of "Water Base Adhesives & Protective Coatings for Industrial Insulations" are described in a four page comprehensive folder.
328II Flintkote Co.

* From advertisement, this issue

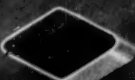


Stainless and Super Corrosion-Resistant TUBING • PIPE • SPECIALTY PRODUCTS



TYPICAL SHAPES


STAINLESS
and
HIGH ALLOY
STEELS

AUSTENITIC
FERRITIC
and
SPECIAL
ALLOYS






FINISHES












SPECIAL ANALYSES
















SCHEDULE 5



SCHEDULE 10



SCHEDULE 40

TUBING
SIZE
RANGE



 4 1/2" O.D.

 1 1/2" O.D.

PIPE
 sizes - 1/8" to 4"

BWG GAUGES 35 to 9

SPECIAL TYPES

Experienced hands at solving many corrosion and heat problems

Your choice of over 35 analyses for
 • corrosion resistance • heat resistance
 • light-weight strength


AISI TYPES			SUPER CORROSION-RESISTANT TYPES
302	310	321	Carpenter Stainless No. 20Cb Carpenter 7Mo Carpenter Alloy B Carpenter Alloy C Titanium 55 and 70
304	316	347	
304L	316Cb	348	
309	316L	430	
309S	317	442	
309SCb	317L	443	

Other specialty grades in various stages of development are available: Zirconium, Zircalloy II, 19-9 DL, Invar, HiMu80, N-155, Haynes No. 25 (L-605), Hastelloy F and Hastelloy X, Armco 17-7PH, Titanium alloys, A-286 and others.

Here's why it will pay you to consult Carpenter about corrosion and heat-resistant tubing for pressure, mechanical, structural and sanitary requirements: The wide variety of types, grades, shapes, finishes and sizes illustrated can be supplied in the many standard and specialty analyses listed above. You benefit from over a quarter century of experience in helping equipment designers and builders

solve a vast assortment of corrosion and heat problems. Carpenter's meticulous quality control assures you of getting tubing and pipe of the highest possible degree of perfection. Technical and metallurgical assistance with your materials selection and fabrication and nation-wide service on your requirements are available through qualified Carpenter Distributors and Representatives in over 40 cities.

Put your problems in Carpenter's capable hands today. Ask for Bulletin T.D. 120.

MEMBER  **The Carpenter Steel Company**
Alloy Tube Division, Union, N. J.
 Export Dept.: The Carpenter Steel Co., Port Washington, N. Y.,—"CARSTEELCO"

Carpenter



Stainless Tubing & Pipe

New Materials of Construction

1957 INVENTORY

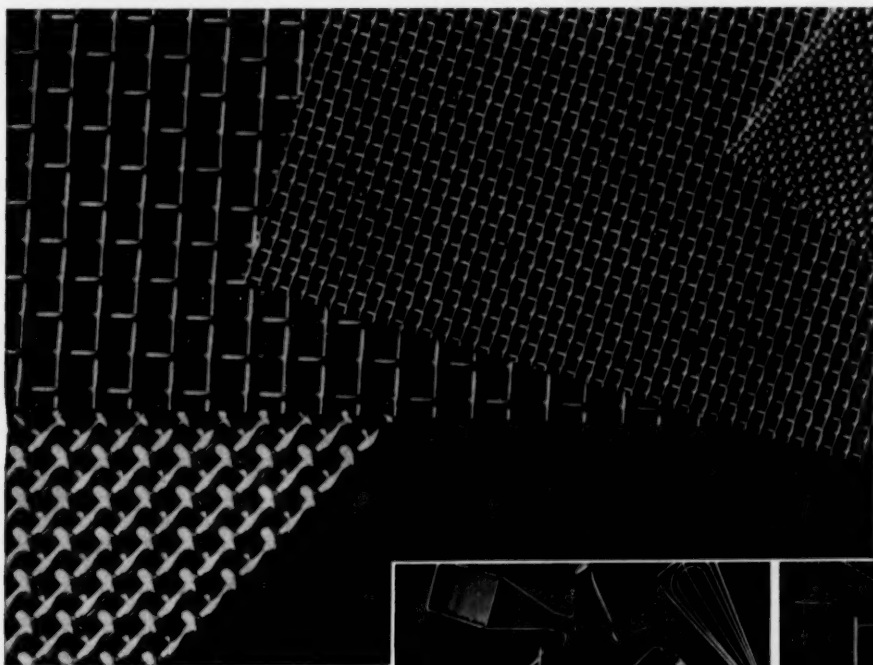
Available Literature

Coatings, Protective—
Fabrication & Erection

- Coatings, Protective.**.... Bulletin covers: function, composition, properties, consistency, products to use with, application, and advantages. Full details made available in Product Bulletin 13-116-2956.
330A Harwick Standard Chem. Co.
- Coatings, Protective.**.... Color-Coat is a lasting color finish for Insul-Mastic protective coatings and concrete, brick, cinder block, metal trim, porous roofing tile, asbestos shingles, stucco, etc.
330B Insul-Mastic Corp. of Am.
- Coatings, Protective.**.... 25 p. catalog on this company's Polyken coating for protection of underground pipelines, and in above ground installations where corrosive agents are a threat to machinery.
330C Kendall Co.
- Coatings, Protective.**.... For any equipment or surface that can be uniformly baked . . . Plastisol compounds offer easy, economical way to apply long-lasting vinyl coating protection. Bulletin VP-1.
330D Metal & Thermit Corp.
- Coatings, Protective.**.... Brochure 1-7 discusses application of protective coatings and linings together with data on sand and grit blasting, fabrication and repair of process equipment.
330E Metalweld, Inc.
- Coatings, Protective.**.... If you have a stubborn corrosion problem Tarsel may be able to extend the life span of your equipment and eliminate costly down time needed for repairs. Details in booklet.
330F Pittsburgh Coke & Chem. Co.
- Coatings, Protective.**.... Selection guide to this company's line of coatings for stopping or preventing rust on nearly all types of rustable metal under exposure to a variety of conditions including salt spray.
330G Rust-Oleum Corp.
- Coating, Protective.**.... Uses for a fast drying liquid protective coating for concrete floors are described in a 4-p. brochure. Table lists 35 chemicals along with product's resistance to them.
330H Sonneborn Sons.
- Coatings, Protective.**.... Descriptive literature available on epoxy-resin zinc-dust coating for steel. Affords maximum electro-chemical cathodic protection and is less expensive than sprayed zinc metal.
330I Steelcoke Mfg. Co.
- Coatings, Protective.**.... Roofkoter can be applied cold by unskilled labor . . . stays flexible . . . expands and contracts with temperature changes. Won't blister, crack or powder. "Saving Old Roofs."
330J Tropical Paint Co.
- Coatings, Protective.**.... 4 p. bulletin describes a coating designed to solve home maintenance problems, said to be suitable for exterior and interior use and to be both weather-proof and waterproof.
330K Tuff-Kote Co.
- Coatings, Protective.**.... Detailed phosphating folder, "A Better Bond . . . For Organic Finishes," covers entire line of phosphating and metal protective coating materials. Folder is available upon request.
330L Turco Products.
- Coatings, Protective.**.... System of primer and finish surface coatings for industrial and marine applications combat corrosion. No surface creep, toughness are advantages. TD1259.
330M U. S. Industrial Chem. Co.
- Coatings, Protective.**.... Tygorust & Tygon "ATD" are companion products to make your fight against corrosion less costly—more effective. You can get better protection. See "Tygon Painting Manual."
330N U. S. Stoneware Co.
- Coatings, Resistant.**.... 4 p. photo-illustrated bulletin describes latest development in sprayable plastisols, Unichrome "Super 5300" Plastisol Coating. Describes single spray application. Bulletin SP-1.
330O Metal & Thermit Corp.
- Coatings, Spray.**.... Three types of "Rokide" spray coatings protect a wide variety of parts, from baffle plates to thermocouple tubes. Hard, adherent, crystalline refractory materials. Bulletin.
330P Norton Co.
- Coatings, Vinyl.**.... Users of vinyl paints can now get five to eight times the film thickness per spray pass through use of Lankote 200-H vinyl coatings. Data sheet available for these fast-dry coatings.
330Q J. Landau Co.
- Columns.**.... Company designs and builds columns for fractionation, stripping, absorption, extraction, chemical reactions and other allied operations. Company offers details in Bulletin 940.
330R Pfaudler Co.
- Concrete.**.... "Concrete from Coral" contains two articles reprinted from Civil Engineering by D. Lee Narver . . . "Coral for Aggregate" and "Sea water for concrete." Copies available upon request.
330S Holmes & Narver, Inc.
- Concrete.**.... Brochure, "Permanent Repair and Restoration of Cracked and Spalled Concrete and Other Masonry Structures," instructs on how to use epoxy-based industrial polyplastic alloys.
330T Permagile Corp. of Amer.
- Concrete, Pre-Stressed.**.... 4 page bulletin describes design and application advantages of pre-stressed concrete for the construction of storage tankage, fire walls, butane or propane storage vessels.
330U Preload Co.
- Construction Materials, Accessory.**.... Insul-Mastic Corp. supplies a full line of caulking compounds, mastic and weathersealing cements, primers, thinners, and aluminum spray. Send for your information.
330V Insul-Mastic Corp. of Am.
- Copper & Copper Alloys.**.... Enlarged edition of specifications index available. Contains list of alloys and products, chemical compositions and applicable specifications of eight testing agencies.
330W American Brass Co.
- Electric Furnace Shapes.**.... Literature covers electric furnace refractories—cores, tubes, muffles—of Alundum or Crystolon materials. Tells how to construct electrical furnaces for laboratory. Bul. 458.
330X Norton Co.
- Electrodes.**.... Illustrated bulletin describes characteristics, properties & sizes of the 5 grades of Ampco-Trode electrodes, both AC & DC. Typical applications listed for each grade of electrode. Bulletin W-25a.
330Y Ampco Metal.
- Enamels, Wire.**.... New 12 p. technical bulletin on "Lecton" acrylic resin wire enamel describes the new magnet wire enamel in comparison with the standard wire enamels—polyvinyl formal & nylon.
330Z E. I. du Pont de Nemours.
- Extrusions.**.... New 6 p. folder, covering extruded products, describes the facilities for production of tubular & solid shapes & explains the Ugine-Sejournet hot extrusion process. Request Folder TB-413.
330AA Babcock & Wilcox Co.
- Fabrication.**.... Company offers free, illustrated Weldment Bulletin 7001 showing superb facilities of their fabrication shop, which recently built the world's biggest rotary-disk contactors.
330BB Baldwin-Lima-Hamilton.
- Fabrication.**.... Illustrated brochure "Facilities and Products" shows company's machine shops, casting and forging facilities, and the heavy production equipment made here in various metals.
330CC Newport News Shipbuilding.
- Fabrication.**.... Company offers free, illustrated Weldment Bulletin 7001 showing superb facilities of their fabrication shop, which recently built the world's biggest rotary-disk contactors.
420 *Baldwin-Lima-Hamilton.
- Fabrication & Castings.**.... Company uses latest techniques of alloy fabrication and casting, including inert gas shielded welding. Fittings, heavy flanges, complex shapes cast. Bulletin 561.
94 *General Alloys Co.
- Fabrication, Chemical Equipment.**.... Company makes individualized equipment built to your exact specifications. Provides surest, most dependable means to fast, economical production. Bulletin 550.
330FF L. O. Koven & Bros.
- Fabrication & Erection.**.... Plate fabrication and erection of vessels, tanks, towers, odd and intricately designed chemical equipment . . . to any size . . . of any material: steel, aluminum, etc. Cat. 54 B.
330GG Hammond Iron Works.

* From advertisement, this issue

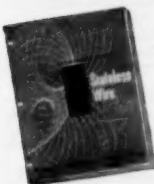
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ALLEGHENY STAINLESS BARS AND WIRE

... Promptly available in the sizes,
grades and finishes you want

WRITE FOR YOUR COPIES OF THESE HELPFUL BOOKLETS



ALLEGHENY STAINLESS WIRE

Illustrated 20 page booklet, which fully describes analyses, physical properties, corrosion resistance, principal uses and applications of stainless wire.



ALLEGHENY STAINLESS BARS

Illustrated 28 page booklet, which fully covers alloy selection, fabrication, annealing, heat treating, corrosion resistance and weight of stainless bars.

ADDRESS DEPT. CE-95

Whatever your particular application may be, the variety and ready availability of Allegheny Stainless Bars and Wire offer many advantages when the requirement is resistance to corrosion, heat, wear or great stress.

Bars are produced in a complete range of analyses, in the form of rounds, octagons, hexagons, squares, flats and special shapes and sections. They can be furnished in hot rolled, cold drawn, ground and rough turned finishes, heat treated to offer a wide range of properties.

Cold drawn wire of almost all standard

grades of A-L Stainless Steel, tempered to provide many correlations of hardness and tensile strength, is obtainable in a wide selection of diameters.

In addition, our Technical Staff is at your service, ready to assist in solving problems of selection and fabrication, and to help you cut shop costs in machining, welding and finishing operations. • Let us handle your stainless bar or wire requirements.

*Allegheny Ludlum Steel Corporation,
Oliver Building, Pittsburgh 22, Pa.*

Make it BETTER and LONGER LASTING with

ALLEGHENY STAINLESS

Warehouse stocks carried by all Ryerson steel plants



Literature Available

Fabrication Metal—
Insulation, Electrical

Fabrication Metal....."Facilities & Products," with information & photographs which show why company can turn out—at low cost—specialized heavy equipment for chemical plants, available on request.
332A Newport News Shipbuilding.

Fabrication, Plate.....Heat exchangers—steel and alloy plate fabrication; containers and pressure vessels for gases, liquids and solids. Company offers details in bulletins on experience and facilities.
332B Downington Iron Works.

Fabrication, Plate.....Illustrated, 12 p. covers dozens of typical examples of plate fabrication work done by the company for chemical, refining, petrochemical, food and other process industries. Bulletin PF.
332C Downington Iron Wks.

Fabrication, Plate.....Plate fabrication and erection of vessels, tanks, towers, odd and intricately designed chemical equipment... to any size... of any material. Complete details in Catalog 54B.
332D Hammond Iron Works.

Fabrication, Plate.....Company promises plate fabrication and erection of vessels, tanks, towers, odd and intricately designed chemical equipment, to any size, of any material. Catalog 54B.
411 *Hammond Iron Works.

Fabrication, Process Equipment.....Fabrication of the following in all standard types of metals: reactors, fractionating columns, heat exchangers, pressure vessels, tanks, evaporators. Details.
332F Brighton Corp.

Fabrication, Process Equipment.....Company's "know-how" assures you of a high-quality product at minimum cost whether your needs require fabrication from stainless steels, aluminum, etc. Booklet.
332G Chicago Steel Tank Co.

Fabrication, Stainless Steel.....Control of these factors: selection of best process, prevention of distortion and warpage, restriction or removal of discoloration, etc. "Sheet and plate Fabrication."
332H Kirk & Blum Mfg. Co.

Fabrication, Welded.....New 20 p. booklet, "Wonders of Welded Fabrication," tells stories of modern steel plate fabrication. Shows welded fabrication as indispensable to almost all basic industries.
332I Acme Welding Div.

Fabrications, Plastic.....American Agile, a pioneer in the field of fabrication and welding of polyethylene and polyvinyl chloride, has experience, specialized skills, production facilities. Brochure.
332J American Agile Corp.

Fabrics.....24 p. outlines the variety of niches filled by fabrics today: coated fabrics and supported film, fabrics and rubber, fabrics in laminates, fabrics for abrasives. Fold-out chart gives fiber properties.
332K Wellington Sears Co.

Fabrics.....Illustrated 16 p. booklet on "Lantuck" explains the qualities and extensive uses of this versatile non-woven fabric. Design and features are described, as well as application and construction.
332L Wellington Sears Co.

Fabrics, Coated.....Fabrics coated with silicone rubber and nylon resin described in 4-page bulletin. Fabrics used for diaphragms, gaskets, seals, tapes, ducting and partitioning. Outstanding properties.
332M Connecticut Hard Rubber Co.

Felts....."Armalon" is the felted form of Teflon tetrafluoroethylene resin, available in one construction for filtering and another impregnated for gasketing. More information offered in bulletin.
259 *E. I. du Pont de Nemours.

Felts, "Armalon"....."Armalon" is the new felted form of Du Pont's "Teflon" tetrafluoroethylene resin, available in two constructions, one for filtering, the other for gasketing. Descriptive Bulletin.
332O E. I. du Pont de Nemours & Co.

Felt, Synthetic.....According to Technical Data Sheet 19, Feutron synthetic felts now are more dense than could be manufactured previously using synthetic fibres. Covers characteristics and properties.
332P American Felt Co.

Felts, Teflon.....Company offers information describing Kelon-T impregnated Teflon Felt for use as seals or gaskets. Describes applications, availability, properties, etc., in product reference.
332Q Shamban Engineering Co.

Fencing, Aluminum.....Fenced areas require no preventive maintenance when they have aluminum chain link fencing. Resists corrosion even in the most active industrial atmospheres. Brochure.
332R Reynolds Metals Co.

Films, Polyester.....6 p. brochure describes the "Scotchpak" brand heat-sealable polyester film. Emphasizes the heavy duty packaging and protective wrapping abilities of the heat-sealable film.
332S Minnesota Mining & Mfg. Co.

Finishes, Flow Coating.....Brochure describes flow-coating finishes used for large areas involving long flow paths. These finishes release bubble instantaneously and hang well on edges and corners.
332T Interchemical Corp.

Flooring Materials.....Booklet covers: patching compounds vs. underlayments; principal subsurfaces; principal types of adhesives; correction for damp concrete; product information. File No. 23Q.
332U Allied Compositions Co.

Grating, Non-Skid.....Catalog R-655 discusses Relgirt non-skid grating for walkways, stairways and platforms. Catalog includes technical information, available sizes, safe load tables, etc.
332V Reliance Steel Products Co.

Grating & Stair treads.....Blaw-Knox electroforged steel grating makes every step a safe step indoors or outdoors. Offers reference & quotations. For information request Bulletin 2486.
332W Blaw-Knox Co.

Grating and Treads.....In Bulletin 2527 you will find descriptions and illustrations on electroforged, riveted, rectangular, diagonal, "U" type and "T" interlocked gratings and treads.
332X Blaw-Knox Co.

Grouting Materials.....Specifications for non-shrink grouting of heavy equipment, anchor bolts, and bridge seats available in Spec. E-10. Functional specification for non-shrink grout in Spec. E-9.
332Y Master Builders Co.

Hard Carbide Metals.....Company offers booklets B-111-A, "Characteristics of Kennametal" and B-222 "Designing with Kennametal." Wide range of hard carbide compositions resist corrosion, impact.
332Z Kennametal Inc.

High Alloy Assemblies.....Company offers high alloy fabricating service to meet your needs. Production of high alloy assemblies utilizing stainless steel, Inconel, Monel, Hastelloys, etc. Bulletin 561.
332AA General Alloys Co.

Insulating Materials.....Technical report gives details on Irrathene (R) irradiated polyethylene, a unique insulating material. Company makes complete information available in Brochure ECCD-I-2.
332BB General Electric Co.

Insulating Materials.....Basaltwool is an amazing fibrous material, made from Basalt volcanic rock, possessing remarkable acoustic and heat insulating properties. Request 4 p. brochure.
332CC Thermo-Sound Products.

Insulation.....4 p. 2-color brochure describes Gilsulate insulation for hot underground pipes. Discusses the problem of underground pipe insulation, application, & includes useful technical data.
332DD American Gilsonite Co.

Insulation.....Thermobestos insulation for outdoor process industry applications has top insulating effectiveness, high strength, light weight and moisture resistance. 12-page Thermobestos booklet.
332EE Johns-Manville Co.

Insulation.....A set of six specifications discusses use of Foamglas insulation on industrial equipment and piping. Each booklet suggests thickness to use, details installation practice and finishes.
332FF Pittsburgh Corning Corp.

Insulation.....Types, characteristics and applications for Class A shellac- and varnish-coated papers, varnished fabrics, slot cell insulation are discussed in 8 p. Bulletin B-7206.
332GG Westinghouse Electric Co.

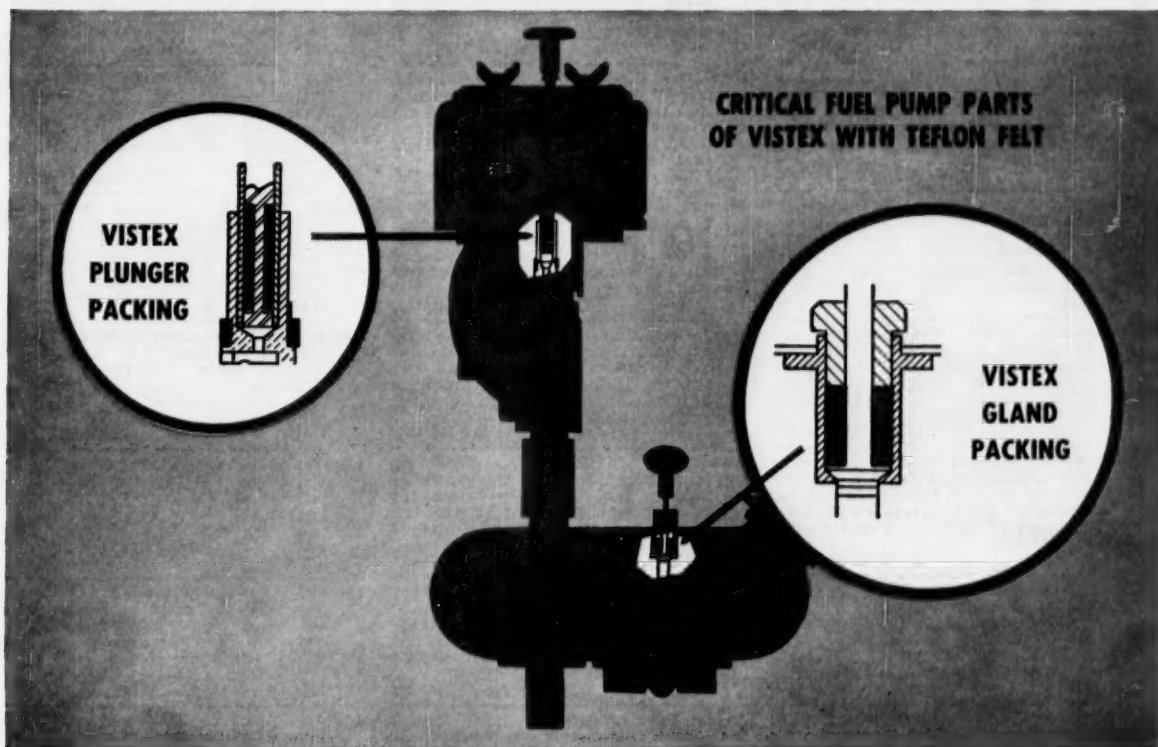
Insulation, Block.....Eagle-Picher PV Supertemp block insulation... with the new "precision-finish." A highly efficient, all-purpose insulating block that is practically dustless. Offers valuable product sample.
332HH Eagle-Picher Co.

Insulation, Electrical.....24 p. booklet discusses use of epoxy resins for protecting all forms of large electrical apparatus. Cost comparison data plus case histories show product's economy.
332II Epoxylite Corp.

* From advertisement, this issue

VISTEX WITH TEFLON FELTS

for positive . . . self-lubricating seals



Are dependable seals your problem?

Here's a new way to solve even the toughest ones . . . *American's Versatile Vistex-with-Teflon Felts!*

Felting of Teflon reinforced synthetic fibres, these advanced-type, self-lubricating Felts are setting new performance standards under both high and low temperature operating conditions. They resist all acids, alkalis, aliphatic and aromatic compounds . . . maintaining their thermal stability in applications up to 420°F!

You get better, stronger seals . . . Vistex-with-Teflon Felts withstand up to 5,000 psi . . . eliminating troublesome lateral plastic flow and sealing on polished or irregular surfaces with only minimum pressure.

Vistex-with-Teflon Felts can be precision cut without ravelling or fraying . . . having a very high tear value. Due to their great strength they are reusable for *even* greater economy.

Available in 36" x 36" sheets with thicknesses of 1/16", 1/32", 1/64" or as cut gaskets, strips and washers . . . quality Vistex-with-Teflon Felts can economically and efficiently meet your specific requirements.

Save time—consult our engineering staff for assistance in choosing the correct Felt. Remember: It's the largest, *most* experienced staff in the industry . . . and it's backed up with the largest, *most* modern laboratory facilities in the industry.

Write today for technical Bulletin VT-2-856 . . . on your company letterhead, please.

OTHER VISTEX FELTS BY AMERICAN

In addition to Teflon, Vistex Felts are also impregnated with such polymeric compounds as:

**HYCAR • NEOPRENE • BUNA S
NATURAL RUBBER • RED NEOPRENE**

. . . to meet individual chemical and physical conditions.

Shouldn't you investigate the advantages of these Felts, too? They are already being used in thousands of difficult applications throughout every major industry.



General Offices and Engineering
and Research Laboratories
317 Glenville Road, Glenville, Conn.

New Materials of Construction

Literature Available

Insulation, Foamglas
Motors, Chemical-Resistant

Insulation, Foamglas.....Foamglas is immune to moisture, acid atmosphere, spillage, condensation damage and other hazards of insulating outdoor equipment. Foamglas industrial Insulation Booklet.
334A Pittsburgh Corning Corp.

Insulation, Glass Fiber.....Brochure No. WPD-12 describes Microlite, Super Fine and Microtex flame-blown glass fiber insulating blankets. Charts illustrate thermal and acoustical values.
334B L.O.F. Glass Fibers Co.

Insulation, Industrial.....Important additions to company's line of industrial insulation products are Eagle-Picher Hylo pipe covering and block and a full line of 85% magnesia coverings, Form A-400.
334C Eagle-Picher Co.

Insulation, High Temperature.....Properties and data, including insulating efficiency and resistance to vibration, are listed in brochure WMF-2 for Micro-Quartz and Glass Micro-Fibers insulation.
334D L. O. F. Glass Fibers Co.

Insulation, Mineral Wool.....Catalog lists specifications for line of spun mineral wool industrial insulating products. Data covers more than 20 types of equipment and piping insulations.
334E Baldwin-Hill Co.

Insulations, Molded Pipe.....Kaytherm, a wide temperature range molded insulation, has been designed for use on steam and heated process piping. Company offers additional information on request.
334F Kearsbey & Mattison Co.

Insulation, Pipe.....Complete specifications for a slit one-piece sectional type molded mineral wool pipe insulation that snaps into place are presented in a 4 p. bulletin. Request your copy.
334G Baldwin-Hill Co.

Insulation, Pipe.....Snap-On is the only one-piece molded pipe insulation of fine glass fibers. Offers these advantages: highest thermal efficiency, lower applied cost, extremely light weight. Brochure.
334H Gustin-Bacon Mfg. Co.

Insulation, Pipe.....Net prices for pipe insulation can be read directly from tables in 28 p. manual. Simple cross reference tables eliminate all need for calculations. Request your copy.
334I Union Asbestos & Rubber Co.

Insulation, Pipe.....Free 40-page Booklet F76-312 contains exclusive "J" Factor Tables for easy, scientific pipe insulation thickness selection. Company's Unibestos pipe insulation discussed.
334J Union Asbestos & Rubber.

Insulation, Pipe.....Amosite, the South African asbestos with long, strong, resilient fibers gives Unibestos pipe insulation greater strength and superior insulating ability. Bulletin No. 109C.
334K Union Asbestos & Rubber Co.

Insulation, Pipe.....Catalog features easy way to select economic thickness of pipe insulation accurately... efficiently. Introduces simplified method based on a special "J" factor. Unibestos Catalog.
334L Union Asbestos & Rubber Co.

Insulation, Pipe & Block.....6-page bulletin "New Ehret Thermafil" gives you details on line of calcium silicate insulations for temperatures up to 1200 F. Physical property tables included.
334M Ehret Magnesia Mfg. Co.

Insulation, Pipe & Block.....Full data on hydrous calcium silicate insulation for hot outdoor piping process equipment operating at service temperatures up to 1200 F. Tells how Thermobestos is made.
334N Johns-Manville.

Insulation, Plastic.....Bulletin 1200-2, 1 p., illustrates polyvinyl jacketed thermocouple extension wire. Describes the advantages and features of the insulation. Gives specifications and ordering data.
334O Claud S. Gordon Co.

Insulation, Underground.....Quarterly company magazine "Pipe Insulation News" will carry stories and articles dealing with the problems of insulating underground hot pipes with Gilsulate.
334P American Gilsonite Co.

Insulations.....Company offers six insulation case study reports illustrating how insulation problems in the petrochemical and petroleum industries were solved. Report available upon request.
334Q Pittsburgh Corning Corp.

Insulations & Coatings.....Company offers literature on a full line of insulations and coatings, including Armadex, Armaglas, and Armstrong Insulations, and Armstrong Insulcolor Coating.
334R Armstrong Cork Co.

Insulations, Industrial.....No matter where your insulation job may be—Armstrong can give you efficient, well-integrated service from original specs to final installations. Booklets describe full line.
334S Armstrong Cork Co.

Insulations, Industrial.....Kaylo-20 is a highly efficient pipe insulation for service at all temperatures to 1800°F. Made to fit pipes as large as 39" in diameter. Full details in booklets.
334T Armstrong Cork Co.

Insulators, Thermocouple.....Bulletin illustrates and describes complete line of Serv-Rite thermocouple insulators. Lists dimensions, sizes, and types available. Request your copy of Bulletin 300-56.
334U Claud S. Gordon Co.

Jacketing Materials, Aluminum....."Kaiser Aluminum Insulation Jacketing Materials & Methods," describes aluminum jacketing materials, forming and application methods.
334V Kaiser Aluminum & Chem.

Laminates, Low Pressure.....Bulletin covers low pressure laminates for corrosion resistance, electrical insulation, high strength and unlimited shapes. Company offers further information.
334W Carl N. Beetle Plastics.

Laminates, Metal.....Detailed engineering information on properties, applications, types, sizes, etc. of Bridgeport metal laminates is presented in 8-page technical bulletin now available.
334X Bridgeport Brass Co.

Latices.....Company offers newsletter on the effect of pH on the properties of textile resin finishes modified with Hycar Latex. Also washable Hycar top grain leather finish. Issue No. 13.
334Y B. F. Goodrich Chem. Co.

Lead.....Lead is relatively inexpensive, extremely durable, pliable and malleable. It is easily salvaged and the scrap value is usually a high percentage of original cost. Lead Handbook.
334Z Federated Metals.

Liners, Tank.....Bulletin 4EL describes Boltaron corrosion-resistant tank liner with built-in thermal compensation. Made from unplasticized Type I PVC, liner will not buckle, crack, distort or sag.
334AA H. N. Hartwell & Son.

Lining Sheet, Chemical Resistant.....Flexible thermoplastic lining for storage tanks, processing tanks, large diameter pipes and fittings etc. Detailed information on Saraloy 898 given in booklet.
334BB Dow Chemical Co.

Linings & Coatings, Protective.....What are the types of protective linings and coatings, why are they important, when and how should they be applied? Answers are found in a report.
334CC Metalweld, Inc.

Linings, Corrosion-Resistant.....Company offers complete design, installation and maintenance of corrosion-resistant linings and tile tanks. Bulletin covers construction materials. Bul. A-153.
334DD Stebbins Engrg. & Mfg. Co.

Linings, Drum.....Unichrome drum linings deliver resilient, seam-free, pore-free protection against such materials as acids, alkalis, salt solutions, alcohols, detergents, etc. Bulletin No. DL-2.
334EE Metal & Thermit Corp.

Linings, Lead.....Specific methods of testing and inspecting sheet lead linings and bonded or lead clad linings. Procedures for the acid wash and dye penetrant methods. Bulletin 15.
334FF Lead Industries Assoc.

Linings, Protective....."Fairprene" protective lining material is pre-vulcanized, can be applied on location to minimize equipment down-time. Offered in sheet, tape, cements, putty. Booklet.
334GG E. I. du Pont de Nemours.

Lining, Protective.....Low-soluble cement-base lining widely used inside steel water heaters, tanks, vats and other vessels handling bulk liquids is in 4 p. bulletin PF-17. Request a copy.
334HH Pocono Fabricators, Inc.

Linings, Protective.....New "Fairprene" pre-vulcanized lining material resists harsh chemicals, ozone, oxidation, aging and abrasion. Sheet, tape, cements, activators and putty. Booklet.
325 *E. I. du Pont de Nemours.

* From advertisement, this issue

1957 INVENTORY

Linings, Rubber..... Linings made from thick, multiple calendered sheets of natural or synthetic rubber that expand and contract with the metal under temperature changes. Catalog 7115.
335A Raybestos-Manhattan.

Linings & Tile Tanks..... Stebbins installations can be made under a contract which covers everything, from the original design to the finished job ready for use, including maintenance. Bul. A-156.
335B Stebbins Eng. & Mfg. Co.

Linings & Tile Tanks..... Non-metallic corrosion-resistant linings and tile tanks are designed and installed to meet the exact requirements of each installation. Full details in Bulletin A-153.
169 *Stebbins Eng. & Mfg.

Materials of Construction..... Atlas offers technical advice, engineering and design assistance, highest quality corrosion proof materials and construction services. Details in Bulletin CC#3.
335D Atlas Mineral Prods. Co.

Membrane, Waterproofing..... According to a brochure, Glasfab membrane of fiber glass yarn used with waterproofing compounds assure lasting results for below-grade waterproofing of walls.
335E Twinsburg-Miller Corp.

Metals, Expanded..... Bulletin describes Micromesh expanded metal with openings ranging from 1/16 up to 2 1/2 in. Using basic diamond pattern, material can be produced from wide variety of metals.
335F Designers Metal Corp.

Metals, Talide..... Tungsten carbide of superior quality, is harder, stronger, and more resistant to abrasion than any other metal. Superior where wear, heat, strain are destructive. Cat. 56-G.
335G Metal Carbide Corp.

Molding Compounds..... Price schedule and data sheet on Thermoflow 800, alkyl (polyester), high impact, fiber glass reinforced molding compounds. Covers electrical, molded and compound properties.
335H Atlas Powder Co.

Mortar, Non-Shrink..... How to get better results in 12 important construction operations by using non-shrink mortar is discussed in Bulletin E-38. Illustrations keyed to explanatory paragraphs.
335I Master Builders Co.

Mortars, Chemical-Resisting..... Revised manual on corrosion proofing provides information on developments in this field. Includes descriptions of the application of Corlok chemical-resisting mortar.
335J Pennsalt Chemicals.

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STRICK'S LAMICOR offers a basic material with a unique combination of chemical, electrical, thermal and mechanical properties. Lamicor offers a single material for use where heretofore multi-material construction was required to gain desired properties. Other Strick reinforced plastics are Glazor flat industrial glazing panels and Daycor corrugated sheets.

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Extra Large Forms
Product Engineering and Development in Plastics
and Laminates
Composite Structures and Honeycomb Panels

New Materials of Construction

1957 INVENTORY

Literature Available

- Nails—**
Plating, Nickel
- Nails.**.....Company announces nails made from corrosion-resistant Hastelloy C. These nails are capable of withstanding strong oxidizing conditions. Company makes information available.
336A John Hassall, Inc.
- Neoprene.**.....Neoprene Notebook covers resistance, neoprene flexible connectors for karbate pumps, process equipment expansion joints, electrical splicing tape, etc. See Neoprene Notebook 70.
336B E. I. du Pont de Nemours.
- Paint.**.....8 p. bulletin G-16 covers polyvinyl latices for paint formulations. It describes physical properties of a latex, this company's Geon 450 X3 which promises to expand latex paint use.
336C B. F. Goodrich Chemical Co.
- Paints.**....."Painting Bulletin" reports results of paint testing, abstracts of pertinent technical articles, investigations of paint failures, and reports of successful paint performances.
336D Steel Structures Painting.
- Paint, Acrylic.**....."Basic Concepts of Acrylic Emulsion Paint Technology" is the subject of 12 p. brochure. Based on lectures prepared by Gerould Allyn for University of Florida short course.
336E Rohm Haas Co.
- Paints, Aluminum.**.....Silicone base protects hot surfaces up to 1,700 F. Unusual heat resistance permits use on previously unpaintable surfaces. Properties and uses described in Bulletin LL-4235.
336F Chem. Industrial Co.
- Paints, Aluminum.**.....Asphalt-Aluminum roof paints and coatings provide low-cost, long-life protection for built-up and rustable metal roofs. Reflect heat to keep buildings cooler in summer. Details.
336G Reynolds Metals Co.
- Paints, Epoxy.**....."Epoxy Paints Have Wider Applications, Longer Life, With Thiokol Liquid Polymer" contains a sample metal strip sprayed with a company's liquid polymer to illustrate improved properties.
336H Thiokol Chemical Corp.
- Paints, Protective.**.....Tygonust & Tygon "ATD" are products to make your fight against corrosion less costly—more effective. You can get better protection. For full story, request TYGON Manual.
336I U. S. Stoneware.
- Paint, Vinyl.**.....A new vinyl paint is said to achieve 5 to 8 times the film thickness per spray pass as other vinyl paints. Supplied in 8 colors, fast drying, easy to apply, economical. TD 1265.
336J U. S. Industrial Chem. Co.
- Pillows, Polyethylene.**.....Designed to retard evaporation of liquids in open tanks and vessels up to 70%, and thus increase service life of the solutions. Company gives additional information.
336K American Agile Corp

- Pipe, Covering.**.....Brochure lists size, price and technical data on low temperature pipe covering called Styrofoam. Also given are data for selection of vessel and tank insulation.
336L Glo-Brite Products.
- Plastic Steel.**.....Devcon, the plastic steel, for making jigs, molds, models, fixtures, forming dies, rebuilding machinery salvaging metal parts, plumbing-automotive repairs. Bulletin NI-100.
336M Devcon Corp.
- Plastics.**.....Many years of research and wide practical experience are behind American Agile in the fields of plastics and corrosion prevention. For information request Brochure AA-4.
336N American Agile Corp.
- Plastics.**....."Plastics Welder and Fabricator" highlights the subject of anti-corrosion polyethylene coatings, and how such coatings may be applied to a wide variety of metal fabrications. Request a copy.
336O American Agile Corp.
- Plastics.**....."The ABC's of Modern Plastics" is an illustrated booklet containing facts on the sources and production of plastics & their growth and importance today. Copies are available.
336P Bakelite Co.
- Plastics.**.....Revised edition of Condensed Reference File of Bakelite Plastics provides reference of six major types of plastic currently used by industry in more than 50 forms. Available.
336Q Bakelite Co.
- Plastics.**.....Booklet "Plastics in the Home Building Industry" tells the story of newest group of building materials that assure installation economies, lifetime performance, etc. No. 9101.
336R Bakelite Co.
- Plastics.**.....For conquering corrosion in storage and process tanks, in fume removal, in chemical flooring, in process pipe and fittings, in columns, heat exchangers. Bulletins C-13 and G-10.
336S Havg Industries.
- Plastics.**....."Plastics for the Laboratory" lists over 60 items made from polyethylene. Also describes tubing made from plasticized polyvinyl chloride and sponge made from polyurethane.
336T Nalge Co.
- Plastics.**.....Ask for "Glossary of Plastics Terms" with some 85 definitions, including terms such as bonding strength, center expansion, delamination, flexural strength, postforming, and thermo plastic.
336U Richardson Co.
- Plastics, Electrical.**.....Illustrated 8 pg. booklet presents a summary of applications, listings of Underwriters' specifications & table of properties for some typical "Geon" electrical compounds.
336V B. F. Goodrich Chem. Co.
- Plastics, Molded.**.....Company offers manual on molded plastics for automotive, electrical, appliance and industrial applications. Discusses advantages and gives histories of applications.
336W Richardson Co.

- Plastics, Polyvinyl Chloride.**.....Bulletin 80-3 tells all about this amazingly versatile material and its applications. Ryertex-Omicron PVC resists attack of more than 250 corrosive solutions and gases.
336X Joseph T. Ryerson & Son.
- Plating, Nickel.**.....If you use, or fabricate, heavy industrial equipment where product contamination is a problem, you can probably use CF&I Lector-Clad to advantage. Lector-Clad Technical Manual.
336Y Wickwire Spencer Steel Div.
- Porcelain Enamel.**.....Porcelain Enamel in Industry tells about the advantages and unique features of porcelain enamelling. Common uses mentioned include meter dials, instruction plates, oil-seal shoes.
336Z Erie Ceramic Arts Co.
- Protective Coatings.**.....Bulletin EP-57-7 covers a high viscosity opaque dip or brush coating compound possessing adhesion to metals and plastics for manufacturers of electrical components.
336AA Furane Plastics, Inc.
- Protective Coatings.**.....6 p. data sheet covers two epoxy coatings for both indoor and outdoor surfaces. Included are specifications, features, applications and working instructions, precautions.
336BB Marlette Corp.
- Refractories.**.....Carborundum has pioneered scores of super refractories with a variety of properties to meet your most demanding requirements. For details, request "Refractories" magazine and bul.
336CC Carborundum Co.
- Refractories.**.....The program by which Harbison-Walker controls the properties and quality of the various refractories is described in brochure, "Better Refractories through Quality Control."
336DD Harbison-Walker Refract.
- Refractories.**.....No other refractory is so chemically stable at such high temperatures under both oxidizing and reducing conditions. Includes information on properties in Bulletin No. 1741.
336EE Norton Co.
- Refractories.**.....Catalog covers 19 standard brands of Remmey refractory brick. These refractories find their application in steel, ceramics, glass, cement, brick and clay, etc. Bulletin RB-20.
336FF Richard C. Remmey Sons Co.
- Refractories, Castable & Plastic.**.....Harbison Walker complete range of castable and plastic refractories—balanced for the selection of the most serviceable product for each need. Information.
336GG Harbison-Walker Refract.
- Refractory Grain.**....."Norton Refractory Grain" offers many charts, tables and photographs in color—a wealth of information on nature, performance, and application of refractory grains. Ask for a copy.
336HH Norton Co.
- Refractory, Insulating.**.....Bulletin 856 discloses method for suspending insulating refractory walls and arches. Eliminates need for drilling holes in the refractory. Depends on stainless-steel clips.
336II Geo. P. Reintjes Co.

HAYNES Alloys solve the *tough* corrosion problems



Exceptional Resistance to CHLORINE COMPOUNDS at 300 deg. F.



Built-In Corrosion Resistance—Sections of 11-gage HASTELLOY alloy C sheet are welded to the interior of a vessel to protect it from attack by HCl and chlorine compounds.

A large preheater lined with HASTELLOY alloy C is giving exceptional service while operating under severely corrosive conditions in a chemical plant. Used in the production of benzene hexachloride, the lined vessel resists the attack of hydrochloric acid, trichlor benzene and other chlorine compounds at 300 deg. F. temperatures.

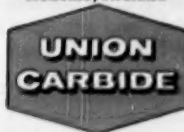
Vessels lined with HASTELLOY alloy C have been used for this application for two to four years. It has been estimated that, with periodic maintenance, the nickel-base alloy will last almost indefinitely.

A recently published booklet describes the corrosion-resistant characteristics of HASTELLOY alloys. Send for your free copy. Write Haynes Stellite Company, Distribution Section, 30-20 Thomson Avenue, Long Island City, N. Y.

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New Materials of Construction

Literature Available

Refractory Materials, Castable—
Steels, Stainless

Refractory Materials, Castable.....
Pli-cast castable refractory material is readily installed, saves installation labor, withstands moisture and abrasion. Offers 13 grades with many uses. Form 38.
338A Plibrico Co.

Rods, Filler....."Ampco-Braz #1, "3-in-1" Filler Rod" describes a low-fuming, high-strength, versatile nickel-brass rod for brazing & brazing-welding with the oxy-acetylene process. Bulletin W-31.
338B Ampco Metal.

Rods, Filler.....Company announces bulletin describing Ampco-Braz #3, which is a high-strength manganese bronze filler rod of uniformly high quality for oxyacetylene welding. Bul. 56L-171.
338C Ampco Metal.

Rubber.....Company offers booklet about Ameripol rubber with information about its physical properties and processing. Contains charts which analyze the properties. Request your copy.
338D Goodrich-Gulf Chemicals.

Rubber Parts.....16 p. brochure describes the rubber-parts-making facilities and operations of the Industrial Rubber Products Div. of Oliver Tire & Rubber Co. Copies available.
338E Oliver Tire & Rubber Co.

Rubber & Plastic Materials.....Piping pumps, valves and tanks have a wide range of temperatures, pressure, impact resistance. For details about Ace rubber and plastic materials, request Bul. CE-50.
338F American Hard Rubber Co.

Rubbers.....Booklet contains charts which analyze the properties of cold non-oil polymers, cold oil-extended polymers, and hot polymers, as well as test recipes and test data. Request your copy.
338G Goodrich-Gulf Chem.

Rubber, Butyl.....Enjay Butyl comes in non-staining grades for white and light-colored parts, offers excellent electrical properties, low price and immediate availability. Full details available.
338H Enjay Co.

Rubber, Butyl.....Bulletin 102, 12 p. covers the resistance of butyl rubber to various solvents and chemicals. Quick reference charts and tables show reaction to certain hydrocarbons, corrosive solutions.
338I Thiokol Chemical Corp.

Rubbers, Chlorinated....."Protection with Parlon" ... Illustrated technical booklet describes the many uses for maintenance paints based on Parlon (Hercules chlorinated rubber). Booklet is available.
338J Hercules Powder Co.

Rubbers, Fluorocarbon.....Brochures give properties, applications, compounding, vulcanization, and fabrication of Kel-F Elastomer—a fluorocarbon rubber with outstanding resistance to heat.
338K M. W. Kellogg Co.

Rubber, Fluoro-silicone.....2 p. data sheet covers results of tests run on company's LS-53 fluoro-silicone rubber, fabric-covered, fabric reinforced seals. Products said to resist tear, abrasion, swelling.
338L Connecticut Hard Rubber.

Rubber, Silicone.....Brochure, "Silicone Rubber & Allied Products" is a first real attempt to remove silicone rubber products from the custom production category. Price list is available also.
338M Connecticut Hard Rubber Co.

Rubber, Silicone....."Imageneering with Silicone Rubber" features properties and applications, available classes, designed specifications for silicone rubber parts compounded from silicone gums.
338N General Elec. Co.

Rubbers, Silicone....."Lighting Selector" facilitates a rapid, accurate choice of the proper silicone compound or gum in the rapidly growing family of synthetic elastomers. Ask for your Bulletin AD 24E.
338O General Electric Co.

Rubber, Silicone.....8 p. Bulletin describes company's K-1014 silicone rubber compound for coating or molding. Describes use in coating glass fabrics to meet Navy Shipboard Cable Specifications.
338P Union Carbide Corp.

Rubber & Steel, Welded.....Resiliency of rubber and strength of steel offer an unbeatable combination against corrosion, abrasion, erosion; welded with adhesion of over 500 psi. Bul. 55.
338Q La Favorite Rubber Mfg. Co.

Sheet, Stainless.....Steel industry estimates that 50% of stainless sheet applications could employ type 430 as an economical and practical material. See "Care & Use of 430 Micro-Rold Stainless Steel."
338R Washington Steel Corp.

Sheets, Asbestos-Cement....."J-M Asbestocite," folder, explains how asbestos-cement sheet can serve industry and shows typical applications. Details on properties, sizes, dimensional tolerances.
338S Johns-Manville.

For your files. Data on...

Materials of Construction

Chemical Engineering's biennial reports on materials of construction are available in reprint form. They'll aid you in picking the right material for new equipment. They'll help add service years to the equipment you now have.

16th REPORT. In three parts: Materials at a Glance; Corrosion Data Charts; Directory of Manufacturers. Corrosion resistance, properties, forms, uses for the most common materials of construction. Charted data of 36 materials vs. 48 corrosives help narrow the field of choice. (\$1. Order reprint No. 58.)

17th REPORT. Protective Linings. The first comprehensive guide to protective lining systems. How to get longer life for your equipment by picking the proper lining material. And getting it into place properly. (\$1. Order reprint No. 88.)

ORDER BY NUMBER. USE READER SERVICE CARD

Stainless Steel Plates & Heads..... Carlson's Weekly Stock Lists tell you exactly what is in their large, diversified stock of stainless steel plates and heads in various types and grades.
339A G. O. Carlson, Inc.

Steels.....Included in the 232-page "Product & Warehouse Catalog" are 16 categories of special purpose steels with over 20 estimating, conversion and weight tables useful to steel users.
339B Crucible Steel Co.

Steel, Abrasion Resisting.....Revised Bulletin 11-3 deals with specially balanced composition of abrasion resisting steel supplied in sheet and plate form for structures and equipment. Performance records.
339C Joseph T. Ryerson & Son.

Steels, Clad.....One side corrosion resistant nickel or high alloy; the other rugged, economical carbon or alloy steel. Permanent bond produced by heat and pressure on rolling mills. "Clad Steel Equipment."
339D Lukens Steel Co.

Steels, Corrosion-Resistant.....Details on the application, corrosion-resistance, properties and workability of Carpenter alloys B and C are found in a bulletin now available from the supplier.
339E Carpenter Steel Co.

Steel, Glassed.....Bulletin discusses the resistance of Pfaudler glassed steel to acids at various high temperatures. Resistivity is comparable to that of laboratory glassware. Bulletin No. 928.
339F Pfaudler Co.

Steel, Lead.Bulletin describes ALCO leaded steel for seamless forged and rolled rings. Illustrated booklet contains test data, microstructures & a chart of physical properties of HI-Qua-Led.
339G ALCO Products.

Steel, Lead Alloy.....4 p. leaflet discusses a machinery steel developed to fill the need for a faster machining, heat treated alloy steel. Includes a guide to steel selection for machine parts.
339H Horace T. Potts Co.

Steel, Plastic.....Devcon is a plastic steel which is 80% steel and 20% plastic. Use Devcon for metal forming and for lathe fixtures, for holding irregular pieces, etc. Request Bulletin NI-101.
339I Devcon Corp.

Steels, Rubber-Lined.....Ace rubber-lined steel... strength and pressures of steel plus chemical resistance of hard rubber. Excellent for alkalies, most inorganic acids, etc. Full details in Bulletin CE-52.
339J American Hard Rubber Co.

Steels, Stainless.....Booklet on stainless steel sheet and strip has data on stainless steel finder, corrosion and fabrication properties, and weight tables. Section on proper applications.
339K Allegheny Ludlum Steel Corp.

Steel, Stainless.....Technical data sheet covers a special stainless steel used for jet engine parts, high pressure steam valves. Covers physical and mechanical properties, resistance to corrosion.
339L Allegheny Ludlum Corp.

Steel, Stainless.....A 40-page booklet "Stainless Steel Report to the Textile Industry" gives detailed information on the textile industry. One section deals with corrosion resistance to textile media.
339M Allegheny Ludlum Steel.

Steels, Stainless.....124 p. case-bound Stainless Steel Handbook helps select right stainless steel and indicates proper usage. Includes listings of analysis, properties, & characteristics of each type.
339N Allegheny Ludlum Steel Corp.

Steels, Stainless.....Information on composition, properties, fabricating methods and applications of AL chromium-manganese, low-nickel stainless steels. Request your copy of Technical Studies #3.
339O Allegheny Ludlum Steel Corp.

Steels, Stainless.....40 p. bulletin presents engineering and fabricating data, including examples showing where, when and how stainless steel improves design, etc. "Stainless Steel in Product Design."
339P Allegheny Ludlum Steel Corp.

Steels, Stainless.....Armco ELC Stainless Steel features low-cost, corrosion-safety factor. Two low carbon stainless grades in sheets, strip, plates, bars, wire. "Armco's ELC Stainless Steels."
339Q Armco Steel Corp.

Steels, Stainless.....Armco 17-4 PH stainless steel offers high strength and hardness, excellent corrosion resistance and simple, low temperature heat treatment in fabrication. Request data.
339R Armco Steel Corp.

Steels, Stainless.....Rezistal 201 and 202 have practically all the desirable properties of 301 and 302, plus some of their own. They are available promptly in all forms. Data Sheets cover properties.
339S Crucible Steel Co. of America.

Steels, Stainless.....Company offers informative 44 p. booklet, "Making the most of Stainless Steels in the Chemical Processing Industries." Dozens of Crucible stainless grades are available to you.
339T Crucible Steel Co. of America.

Steels, Stainless.....Comprehensive 40-page manual gives all the information on approved techniques for fabricating stainless steel. Included in manual 590a are cold forming and other methods.
339U Republic Steel Corp.

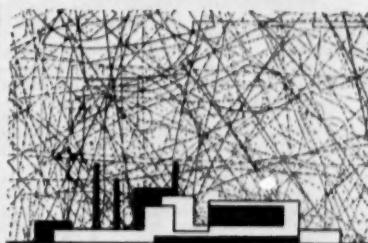
Steels, Stainless.....Wide selection of carbon, alloy and stainless steels in bars, structurals, plates, strip, sheets, tubing, reinforcing products, industrial plastics, tools, machinery, etc. Catalog.
339V Joseph T. Ryerson & Son.

Steels, Stainless.....Wide selection assures you of getting the best stainless for every application. Extra care in storage, handling and shipping guards the quality of stainless stocks. Buyers guide.
339W Joseph T. Ryerson & Son.

Steels, Stainless.....Company offers "MicroRold 430 Stainless Steel Handbook" on their straight chromium stainless grade—approved for military use, corrosion-resistant, economical.
339X Washington Steel Corp.

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If paint is doing a satisfactory job of protecting your plant structure or equipment against chemical fumes, splash or spray, stop right here. If not, GACO Neoprene N-700 Maintenance Coating is a product you should know about. It wraps a film of tough, elastic Neoprene rubber around metal, wood, or concrete; offers the advantages of higher resistance to corrosive agents, wide temperature ranges, sunlight, weathering, surface abrasion—and at lower applied cost.



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Inquiry Code for This Advertisement-339

Literature Available

Steel, Stainless, Aircraft
Zirconium & Hafnium

Steels, Stainless, Aircraft......Ryerson manufactures stainless steel bars, sheets, strip, and plate to U. S. Government and Aeronautical specifications. Send for Ryerson Aircraft Steels booklet.
340A Joseph T. Ryerson & Son.

Steel Wire & Rod......Recently issued section of the Steel Products Manual covers wire and rods, carbon steel. Includes chemical ranges and limits, methods of manufacture, evaluation and tables of gages.
340B American Iron & Steel Inst.

Stocks, Silicone Rubber......8 p. brochure describes & illustrates properties & applications for Silastic 50 & 80, two useful general-purpose silicone rubber stocks. Contains data, graphs, tables.
340C Dow Corning Corp.

Surfacing, Floor......Result of continuous search for better corrosion-proof materials—offers greater protection than conventional acid-proof floor materials. Brochure & sample of Corocrete on request.
340D Celcote Co.

Surfacing Material, Metal......Development for improved mechanical seal facing—#55 Facing Material. Provides a wear-resistant, highly refractory coating of pure oxides. For details, request bulletin.
340E Durametallic Corp.

Tank Liner......Circular now available describes polyvinylchloride tank liner that fits any size tank and provides low-cost storage for certain corrosive liquids. Liner has combination outlet-sight gage.
340F Fabricated Metals, Inc.

Tantalum......Company offers a corrosion test kit, available without charge to research technicians. Contains tantalum sheet. Also publication, "Corrosionomics," containing articles on tantalum.
340G Fansteel Metallurgical Corp.

Tantalum......Tantalum is immune to hydrochloric acid, nitric acid, bromine, iodine, chlorine, etc. It is strong, immune to thermal shock, unequalled in heat transfer efficiency. Tantalum Booklet.
340H Fansteel Metallurgical Corp.

Tapes, Insulating......Four-page booklet describes four types of polytetrafluoroethylene electrical insulating films and tapes. Chart lists properties and methods for applying each type.
340I Minnesota Mining & Mfg. Co.

Teflon......Bulletin covers Teflon products including thin-and-heavy-walled tubing and rod, steel pipe lining, insulated wire, sheet and machine parts. Also details Teflon's exceptional properties.
340J Haveg Industries.

Teflon......Varied mechanical properties cited in Bulletin T-300 show how heavy walled tubing and rod can be used as gaskets, pump and valve parts. Continuous rating from -265 to 500 F.
340K Haveg Industries.

Teflon Products......Teflon seal cages last longer than metal lantern rings under continuous corrosive attack. Teflon ring packings give months of leak-free service. Full details in Bulletin CP552.
340L Chem. & Power Products.

Teflon Products......Illustrates many special molded & matures, tap changers, core-type con-pure teflon, glass-filled teflon, glass & carbon-filled teflon & zircon-filled teflon. Bulletin No. CP554.
340M Chemical & Power Products.

Teflon Products......Company fills requirements for custom molded Teflon, and carries a complete stock of all standard Teflon (DuPont's resin) products. Data, prices, properties sent on request.
340N Sparta Mfg. Co.

Teflon Resin......Company offers property and application data on "Teflon" tetrafluoroethylene resins. Used as thin-walled linings in steel pipe, as tubing and as solid parts; tough and inert.
340O E. I. du Pont de Nemours.

Tiles, Floor......Duro acid-proof tiles are recommended for durable, chemical-proof floors. Variety of cove base shapes and standard rectangular sizes makes for close-fitting construction. Bul.
340P Harbison-Walker Refractories.

Titanium......For process development work, take advantage of titanium's corrosion and cavitation resistance, light weight and high strength. Company offers informative titanium booklet.
340Q Du Pont Co.

Titanium......24-page "Titanium Fact File" gives key data on physical, mechanical and corrosion properties; metallurgy; machining; forming and welding. Table compares titanium with other pure metals.
340R Mallory-Sharon Titanium.

Titanium......Bulletin describes uses of titanium, based on its corrosion resistance. Also contains corrosion ratings for titanium when exposed to many common types of corrosive agents.
340S Mallory-Sharon Titanium Corp.

Titanium......Shows resistance to chloride solutions and retains useful strength up to 800-1000F. Other advantages and data on application and fabrication of titanium in Rem-Cru Review.
340T Rem-Cru Titanium.

Tooling, Plastic......"The Marblette Digest of Plastic Tooling" summarizes applications of plastic tooling for metal-forming & plastics-forming & in foundry practice. Describes thermosetting materials.
340U Marblette Corp.

Tread Plate, Abrasive......Alcoa abrasive aluminum tread plate means safe footing. Slip-proof under oil or water films on inclines up to 30°. For details, see "Alcoa Abrasive Tread Plate."
340V Aluminum Co. of America.

Tubes & Rods, Plastic......Catalog on plastic rod & tube stock covers available sizes & prices of stock made of methyl methacrylate, Teflon, cast acrylic, vinyl, polyethylene, cellulose acetate & polystyrene.
340W Friedrich & Dimmock.

Tungsten Carbide......Characteristics of Kennametal Grade K501 are discussed in bulletin, Form L 501. This tungsten carbide with platinum binder is for severe corrosive conditions. Gives properties, uses.
340X Kennametal, Inc.

Varnish, Epoxy......Bulletin discusses Alliseal epoxy varnish L. A. V6250—tank life and shelf life, thermal endurance, resistance to contamination, mechanical strength, good varnish practice, etc.
340Y Louis Allis Co.

Varnish, Ink......New non-blocking wet ink varnish offered. Intended for can manufacturers and metal decorators, varnish has good color retention and non-blocking properties. Request details.
340Z Pittsburgh Plate Glass Co.

Varnish, Insulating......Bulletin discusses Alliseal clear heat reactive insulating varnish L.A. V6350—tank life and shelf life, thermal endurance, resistance to contamination, mechanical strength, etc.
340AA Louis Allis Co.

Varnish, Insulating......Bulletin discusses Alliseal modified alkydsilicone heat reactive insulating varnish L.A. V6450—tank life and shelf life, thermal endurance, mechanical strength, etc.
340BB Louis Allis Co.

Varnish, Phenolic......Bulletin discusses asphalt phenolic varnish—LA V6150—which has been developed for insulating electric motors, generators, solenoids, transformer, etc. Presents advantages.
340CC Louis Allis Co.

Weldments......Bulletin gives particular attention to the fabrication of large custom-designed weldments such as pressure vessels, bridge structures, vehicular tunnel linings, etc. Bulletin 7001.
340DD Baldwin-Lima-Hamilton Corp.

Wire, Stainless......20 page booklet, Allegheny Stainless Wire, tells about analyses, physical properties, corrosion resistance, principal uses and applications of stainless steel wire.
331a Allegheny Ludlum Steel.

Wrappings, Protective......Bulletin describes protective plastic coating developed for use on acid-carrying pipe lines. The coating serves as a mechanical reinforcement for the pipe. Bulletin #9010.
340FF Bakelite Co.

Zirconium......Company's zirconium publication, "More Zr Facts," is designed to provide the first continuing source of zirconium technical data to industry. Place your name on the mailing list.
340GG Carborundum Metals Co.

Zirconium......6 p. bibliography on applications and properties of zirconium and alloys. Covers mechanical, physical, electrical, chemical and nuclear properties, information on ore deposits.
340HH Columbia-National Corp.

Zirconium & Hafnium......Brochure describes these metals, their properties, fabrication and uses in the nuclear and chemical processing industries. 12 p. technical brochure "Zirconium & Hafnium." TD 1264.
340II U. S. Industrial Chem. Co.

* From advertisement, this issue

↙ *Code numbers for fast Reader Service*

Arm, Loading

Spring balanced. (341A)

... Type 890 loading arms are engineered for chemical and process industries. Positive operation, full flow and long service life are assured by

features like spring balancing, internal streamlining and hard surfacing of ball races.—*Wheaton Brass Works, Union, N. J.*

Bearing, Conveyor-Roll

Mounted on stud, allows easy replacement. (341B)

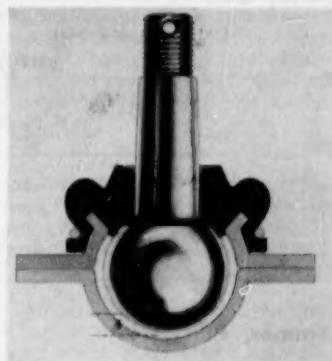
... With new stud and bearing assembly, maintenance and replacement costs on rolls and return idlers for belt conveyors are lower. Conveyor

roller shaft turns in ball bearings mounted on removable studs. All maintenance is done at the conveyor.—*Bearings, Inc., Cleveland 15, Ohio.*

Bearing, Dry

Tetrafluorethylene-fiber lined bearing halves friction load. (341C)

... Suspension ball joint bearing using Teflon-fiber fabric facing eliminates need for conventional lubrication. Compared with standard lubricated suspension joints used in today's automobiles it cuts friction more than 50% at no increased cost. Development may help to solve such problems as lubrication of hard-to-reach parts, operation of frictional parts in extreme temperatures and in corrosive chemical environments. In food- and drug-processing equipment, bearing overcomes problem of contamination from lubricants.—*American Metal Products Co., Detroit 4, Mich.*

**Block, Pillow**

Unique mounting feature. (341D)

... Spher-Align line of spherical roller bearing pillow blocks incorporates Micro-Mount mounting feature

with which user can seat bearings solidly on shafts—quickly and easily.—*Dodge Mfg. Corp., Mishawaka, Ind.*

Booster, Wrench

Boosts turning force 4x. (341E)

... Used with standard sockets and wrenches, model TD wrench booster provides a four-to-one mechanical advantage for loosening and tightening heavy threaded parts easily and safely.

By increasing a man's strength four times, tool eliminates personal hazards and reduces equipment damage from force applied poorly.—*X-4 Corp., Acton, Mass.*

Chain, Roller

Non-corroding, costs 40% less than stainless steel. (341F)

... Electrolyzed roller chain, developed to meet corrosion-resistant requirements, costs 40% less than stainless steel chain. Tensile strength of chain is greater than that of stain-

less chain and equal to alloy chain. Chain is made in all Standard American Roller Chain sizes and meets all accepted spec standards.—*Atlas Chain & Mfg. Co., West Pittston, Pa.*

Clamp, Pipe

Attaches pipe to steel frame. (341G)

... New Latrobe clamp attaches pipe or conduit to steel framework without need for drilling holes. Clamp is made of high quality malleable iron and is

cadmium plated to prevent rust. It has a double bite of case-hardened tool steel.—*Fullman Mfg. Co. Latrobe, Pa.*

Clutch

Offers advantages over centrifugal type. (341H)

... Tog-O-Loc clutch, with exclusive "lock in" toggle action disengages at a speed 400-500 rpm. slower than it engages. Resultant gains over centrifugal clutch: Engine can idle at

satisfactory speed without slippage at relatively low operating speeds; there's greater load capacity in proportion to clutch weight.—*Salsbury Corp., Los Angeles 1, Calif.*

Coupling, Flexible

For shafts, resembles rubber tire. (341I)

... Para-flex coupling is patterned after automotive tire. And, while it operates with simplicity and dependability of modern tire, it's reported to outperform most complex

coupling mechanism. Advantages include ability to handle angular misalignment, parallel misalignment and end-float.—*Dodge Mfg. Co. Mishawaka, Ind.*

FOR MORE INFORMATION on any item in this section, write its code number on one of the Reader Service postcards (inside back cover) and mail. It's fast and easy.

New Mechanical Equipment

1957 INVENTORY

Cutter, Metal

Eases cutting of corrugated sheet metal.

(342A)

... Portable metal-cutting nibbler cuts corrugated sheet metal and small diameter duct or sheet-metal pipe without distorting, curling or flattening

corrugated curves on either side of the cut. Nibbler cuts 33 in./min. of 16-gage metal.—*Fenway Machine Co., Philadelphia 34, Pa.*

Ejector, Carbon

Handles corrosives.

(342B)

... Carbon ejectors using either steam or water as motive fluid handle all corrosive fluids. Ejectors are

exceptionally rugged in both a mechanical and thermal sense.—*Delanium Graphite Co., Elizabeth, N. J.*

Ejector, Gas

Cuts pumping cost.

(342C)

... Graham gas ejector features high-release burner which produces high-energy motive fluid that improves ejector performance. Unless a plant has sufficient waste steam to fill ejector requirement, gas ejector can be installed and operated for less overall cost than either the air or steam types. In refineries, where there is ample fuel gas and 40-70-lb. air, gas ejectors are ideal. In Graham ejector, fuel oil or fuel gas is burned with air to produce gas at 3,500 F.—*Graham Mfg. Co., Batavia, N. Y.*



Hammer, Pile

Self-contained, diesel powered.

(342D)

... Diesel-powered pile hammer requires neither boiler nor air compressor; is completely self-contained, light, mobile, versatile and compact.

It can handle jobs that are uneconomical for conventional pile drivers and their auxiliary equipment.—*McKiernan-Terry Corp., Dover, N. J.*

Kit, Conversion

Changes lift trucks over to operation on LP gas fuel.

(342E)

... Pre-assembled kit makes possible conversion of industrial lift truck to operation on LP gas fuel within three or four hours. Some users of lift truck claim savings of up to 40% of operational costs by converting to this fuel. Kit comes complete with

fuel cylinder bracket, toggle and strap to hold cylinder in position and location pin to carburetion linkage. Kit is approved by Underwriters' Laboratories and insurance underwriters.—*Industrial Gastruck, Inc., Evanston, Ill.*

Lubricating System

Operates at temperatures up to 500 F.

(342F)

... Fully automatic lubrication at temperatures to 500 F. is provided by centralized lubricating systems. Newly designed valves and filters

combine heat resistance with required filtration and flow control characteristics.—*Bijur Lubricating Corp., Rochelle Park, N. J.*

Muffler, Pneumatic

For air-operated equipment.

(342G)

... Combination of four-way deflector and internal acoustical resonator improves air dispersement and impingement in Atomuffler muffler. Air is dispersed outward in lateral-radial pattern which cuts velocity to a minimum

and eliminates oil fog and water spray. Disseminator permits passage of greater air flow volume. Atomuffler is available in sizes from 1 to 2 in. N. T. P.—*Allied Witan Co., Inc., Cleveland, Ohio.*

Oil System

Used with compressor and steam turbine installations.

(342H)

... Packaged lubricating-oil system has been developed for use with compressors and steam turbine drivers. All components are mounted on common base. Accessibility to gages and

maintenance points has been increased by a compact arrangement for oil reservoir, pumps, motor, turbine, coolers and filters.—*Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.*

Seal, Mechanical

Built with improved facing for handling chemicals.

(342I)

... No. 55 facing for mechanical seals is a wear-resistant, highly refractory coating of pure oxides recommended for all chemical service other than hot strong caustics and some fluorine compounds. Material is highly resistant to thermal or physical

shock and corrosion. Parts to be treated must be shipped to manufacturer's Kalamazoo plant for application of No. 55 facing. It seals with a very low coefficient of friction at the contact surfaces.—*Durametallic Corp., Kalamazoo, Mich.*

Seal, Mechanical

Pre-set compression simplifies installation.

(343AA)

... Incorporation of pre-setting ring makes installation of mechanical shaft easy. With simple hand tools, mechanics can install or replace seals

without need for measurements or reference to installation drawings.—*Byron Jackson Pumps, Inc., Los Angeles 54, Calif.*

Seal, Shaft

For light oil. (343BB)

... DuFelt oil and bearing seal seals light oils when no head of oil exists. It resists aging and oxidation and is less permeable to gases and other sub-

stances than many seals. DuFelt is special lamination of Hycar and felt.—*Felters Co., Felt Products Div., Boston 11, Mass.*

Seals, Bellows

Seal shafts at extreme temperatures. (343CC)

... Series of metal-bellows mechanical shaft seals operates efficiently at temperatures above +700 F. and below -100 F. Each seal is tailored to meet specific requirements and is provided to fit any shaft size, complete

with mating faces. Recommended use is for operations where acids, solvents or other chemical agents will destroy the organic components of other types of seals.—*Cartriseal Corp., Lincolnwood, Ill.*

Seals, Pressurized

Seal at high temperatures. (343DD)

... Pressure-filled metal O-rings improve sealing characteristics at elevated temperatures and provide increased resilience with greater flange

deflection. They'll be used principally where operating temperatures exceed 1,000 F.—*Advanced Products Co., North Haven, Conn.*

Springs, Plastic

Made by mass production techniques. (343EE)

... National Bureau of Standards has developed a practical procedure for mass producing plastic springs, making their wider use possible. Springs are molded by drawing resin-soaked glass fibers through vinyl copolymer tubing. Then, loaded tubing is wrapped into helical shape around

a mandrel. After curing in oven, tubing is removed as solid plastic spring which is reinforced with glass fibers. Properties of springs can be varied widely by proper choice of materials and dimensions.—*National Bureau of Standards, U. S. Dept. of Commerce, Washington 25, D. C.*

V-Belt

Stronger. (343FF)

... High-capacity V-belt offers up to 40% more strength than standard belts. Drive costs can be lowered

since you can handle given load with fewer belts and narrower sheave.—*Thermoid Co., Trenton, N. J.*

Literature Available**MECHANICAL EQUIPMENT**

Bearings-Bushings-Washers..... Chempro's Style FM-4 bearings, bushings, washers, etc., give service in pumps, mixers and reactors operating under corrosive conditions. Bulletin CP554. **343A** Chemical & Power Products.

Bearings, Non-Lubricated..... Carbon graphite non-lubricated bearings described in 16-page catalog operate under very high temperatures, are chemically inert, overcome many maintenance ills. **343B** Electro-Nite Carbon Co.

Bearings, Roller..... Bulletin gives load ratings, dimensions and other data on Dodge-Timken Roller Bearings. Offer superior performance, dependability and long life. Delivered, ready to mount. Bul. A638. **343C** Dodge Mfg. Corp.

Bearings, Rolling..... Data on SC and SCM Ball Bearings in Bulletin A63B. Details on Taper-Lock Steel Conveyor Pulleys in Bulletin D56. Dodge Take-Ups covered in Bulletin D56 also. Request copies. **343D** Dodge Mfg. Corp.

Belts, V..... How you can prolong belt life, increase drive efficiency and assure full continuous production are told in 12-page bulletin 20X-6234C. "Longer Belt Life for Your V-Belt Drives." **343E** Allis-Chalmers Mfg. Co.

Belts, V..... Bulletin describes construction features of the "Texrope" grommet V-belt which provides 20 to 50% longer life than ordinary belts. Company gives Bulletin 20B-6497C upon request. **343F** Allis-Chalmers Mfg. Co.

Belts, V..... Bulletin covers construction details and data on sizes, pitch lengths and outside lengths. Company makes complete information available in Product Bulletin A-606. Request your copy. **343G** Dodge Mfg. Corp.

Belts, V..... "What do you do when V-belts stretch or break" poses and answers questions on V-belt maintenance, inventory, wear and vibration. The four-page folder features Vellos adjustable-link V-beltting. **343H** Mannheim Mfg. & Belting Co.

Belts, V..... Vellos adjustable v-belts assures faster, cleaner work, less vibration, cooler running, greater flexibility & simple installation. Vellos Data Book contains engineering data. **343I** Mannheim Mfg. & Belting Co.

Belts, V..... Announces the availability of a descriptive product reference on the complete line of Condor V Belts for regular service on conventional V-Belt drives. Illustrated Bulletin No. 6868. **343J** Raybestos-Manhattan.

Belts, V..... Product Bulletin furnishes information on company's line of R/M Super-Power V-Belts with 40% more horsepower capacity where needed. Request your copy of Bulletin No. 6628. **343K** Raybestos-Manhattan.

Bender, Hydraulic..... 40-ton bender makes 90° bend in 4" pipe with one ram stroke. Eliminates time-consuming extra setups on construction jobs. Full description in bulletin E-224. **343L** Greenlee Tool Co.

Box Car Pullers..... Powerful S-A car pullers eliminate the slow and ineffective use of pinch bars, allow tow-trucks and tractors to do the duties they were designed for, company says. Bul. 753. **343M** Stephens-Adamson Mfg. Co.

New Mechanical Equipment

1957 INVENTORY

Literature Available

Casters & Wheels— Gaskets

Casters & Wheels.....Featuring Darneloprene treads (a soft resilient Neoprene rubber compound) . . . casters offer ease of movement, quietness and protection for floors. Details available in Manual.
344A Darnell Corp.

Casters & Wheels.....56-page catalog 125 contains illustrations, descriptions and specification data on hundreds of types and sizes of casters for every industrial requirement.
344B Hamilton Caster & Mfg. Co.

Chains.....Bulletin describes Accoloy X-Weld 125 Chain, the latest major development in the art of welding chain and said to resist bending, breaking, and kinking. Request Bulletin No. DH-319.
344C American Chain & Cable Co.

Chains, Bushed Roller.....Features, applications and selection data on bushed roller chain are detailed in Book 2454. They are manufactured in two designs . . . straight or offset sidebars.
344D Link-Belt Co.

Chains, Electrolyzed.....Company offers a concise folder in question & answer form on electrolyzed roller chain. Discusses corrosion resistance & gives advantages of electrolyzed chain.
344E Atlas Chain & Mfg. Co.

Chains, Roller.....Roller chain is non-corrosive and costs 40% less than stainless steel chain. Offers savings in maintenance and lessened friction drag. Request technical data, price, samples.
344F Atlas Chain & Mfg. Co.

Chains, Roller.....Strength assures longer work-life for Link-Belt roller chain. Complete range of single and multiple widths, 1/4 to 3-inch standard pitch, and 1 to 3-inch double pitch. Data Book 2457.
344G Link-Belt Co.

Chassis Slide Assemblies.....Chassis-Trak's "Easy-Mount" chassis slide assembly (Model CTEM) simplifies mounting of electronic equipment in cabinets or racks. Further information upon request.
344H Chassis-Trak Corp.

Clutches.....Company offers manual on automatic freewheeling clutches; combination clutch-couplings; backstops to prevent reversed runaway of inclined conveyors or vertical elevators, etc.
344I Marland One-Way Clutch Co.

Clutches.....Unique clutch, with exclusive "lock-in" toggle action, offered by Salisbury Corp. Tog-O-Loc Clutch has disengagement speed about 400-500 rpm lower than engagement speed. Bul. 56-D-2.
344J Salisbury Corp.

Clutches, Air-Grip.....Dodge offers bulletin on Air-Grip Clutches. This bulletin presents technical data, sizes and selection tables. Complete details in Bulletin A634. Request your copy.
344K Dodge Mfg. Corp.

Clutches & Transmissions, Automatic.....4 p. bulletin illustrates and describes line of automatic clutches and transmissions offered by Salisbury. Bulletin 56-D-1 is available upon request.
344L Salisbury Corp.

Conduit....."Therm-O-Tile" conduit for underground piping, its construction and installation is described in 12 p. publication. How the piping is supported, anchored and guided. Bulletin No. 9156.
344M Porter-Hayden Co.

Conduits, Aluminum.....Company offers literature and one-foot sample of Alcoa Aluminum Electrical Rigid Conduit, which weighs 2/3 less than steel, is safer, easier to bend and thread. No straining.
344N Aluminum Co. of America.

Condulets, Manhole, Above Ground.....Type GUB above ground manhole conduit provides a simple, inexpensive means for splicing main electrical feeder cables and making branch taps. Information.
344O Crouse-Hinds Co.

Connectors, Pipe, Flexible.....Chemlon connectors are fabricated from the most chemically resistant material available, DuPont Teflon. Most destructive acids have no deteriorating effect. Information.
344P Crane Packing Co.

Controls, Tube Expander.....Bulletin 56-1 describes air-powered boiler tube expander drive and control. Discusses advantages of precise tube rolling and features of the device. Request a copy.
344Q Thomas C. Wilson, Inc.

Cores, Magnetic.....Bulletin MT-103 describes Ferramic Magnetic Cores, giving specifications & data on standard grades of Ferramic "S-1". Includes tables of core sizes & magnetic properties.
344R General Ceramics Corp.

Discs.....Guide describes Jenkins Discs, and their applications for steam, hot and cold water, air, gas, oil, gasoline, including Teflon Disc for lasting, dependable control of oxygen, etc. Form 203.
344S Jenkins Bros.

Discs, Rupture.....D and DV Rupture Disc extends range for high temperature applications, provides maximum service under pulsating or reversing pressure conditions. Get Catalog 77-31.
344T Black, Sivalls & Bryson.

Disks, Rupture.....Impervite rupture disks are standard for 150# flanges, temperature to 300°F., 5% accuracy, diameters from 2" to 12". Development in fragibles from Falls. Request Catalog 315.
344U Falls Industries.

Drive, Conveyor.....Selection of drives for screw conveyors is a simple matter with Catalog SCD-57. A complete shaft-mounted Screw-King drive can be designed within a few minutes.
344V American Pulley Co.

Drives.....Describes the Cleveland Speed Variator—a simple, compact drive that provides variable output speed over a range up to 9:1 from a constant speed power source. Bulletin K-200.
344W Cleveland Worm & Gear Co.

Drives.....U.S. Holloshaft, Type GPC, is a right-angle combination drive developed for municipal water supply stations, sewage disposal plants, fire fighting stations, etc. See Bulletin 1775 and F-1912.
344X U. S. Electr. Motors.

Drives, Belt.....No other belt drive can deliver as much power in the same space, delivers up to 50% more power than a conventional V-belt drive of equal width. Poly-V Drive Bulletin 6638.
344Y Raybestos-Manhattan.

Drives, Belt.....Company's 112-page engineering Data book is available for the selection and design of Poly-V belt drives. Many useful charts, tables and diagrams together with specifications.
344Z Raybestos-Manhattan.

Drives, Fan.....Bulletin describes hydraulic fan drive for air-cooled heat exchangers and cooling towers. Includes details on IMO motors and pumps that make up the fan-drive unit. Ask for Bulletin 3009.
344AA De Laval Steam Turbine Co.

Drives, Fluid.....Bulletin discusses construction features and advantages of Size 126 Type T Gyrol Fluid Drive for general industrial application. Request illustrated Bulletin No. 9719.
344BB American Blower Corp.

Drives, Fluid.....8 p. illustrated catalog describes the 1 through 25 hp Type VS Class 2 Gyrol Fluid Drives. Discusses advantages and typical applications. Send your request for Bulletin 9819.
344CC American Blower Corp.

Drives, Fluid.....Publication covers friction and fluid drives for industrial applications and includes articles and tips on the efficient use of these drives. Request "Production Road," Vol. 18, No. 2.
344DD Twin Disc Clutch Co.

Drives, Fluid, Dry.....Dodge product, Flexidyne, the dry fluid drive, starts loads smoothly; protects against shocks and overloads; saves power; gives 100% efficiency at full load. Bul. A-640.
344EE Dodge Mfg. Corp.

Drives, Hydraulic....."Industrial Rotating Hydraulic Drives" is a reprint of Mr. M. G. Malmquist's talk on "Automation" and its application in performing operations on continuous webs. Bulletin 15011.
344FF Oilegear Co.

Drives, Pneumatic.....Pneumatic power drive units that remotely operate and position valves, dampers, louvers, rheostats, vanes and variable-speed drives are described in Bulletin 1033.
344GG Blaw-Knox Co.

Drives, Shaft Mounted.....Falk Shaft Mounted furnish the economical solution to problems of efficient speed reduction in a limited space. Company makes details available to you in Bulletin 7101.
344HH Falk Corp.

Drives, Silent Chain.....Book gives details and advantages . . . complete technical data on Link-Belt silent chain drives. Humidity, heat, cold do not lower chain's better than 98% efficiency. Book 2425.
344II Link-Belt Co.

- Drives, V-Belt.**.....Easy to read self-mailers are intended to help users of V-Belt Drives diagnose many of the common causes of trouble in their drives. Mailers #1, #2 and #3 are available.
345A Worthington Corp.
- Drives, Variable Speed.**.....Company offers information on line of variable speed drives, Vari-Mount. Feature standard, interchangeable components to accommodate standard motors.
345B Foote Bros. Gear & Mach.
- Drive, Variable-Speed.**....."Performance 'Round the Clock" is the theme of Bulletin 522 on the Graham variable-speed drive. Complete explanation with drawings highlights this transmission.
345C Graham Transmissions.
- Drives, Variable Speed.**.....Reeves Automatic Motodrive, used in connection with modern instrumentation, provides flexible, sensitive, accurate speed control for automatic processes. Bulletin CE25-M542.
345D Reliance Elec. & Engrg. Co.
- Drives, Variable Speed.**.....Contains information about features, operating principle, design, component parts, and includes selection tables on variable speed drives with touch control. Bul. 1600-B7.
345E Worthington Corp.
- Drives, Worm Gear.**.....16-page brochure, "Finger Tip Facts on Cleveland Worm Gear Drives," provides useful summary information on complete standard line of speed reducers, worm gear sets.
345F Cleveland Worm & Gear Co.
- Drives, Worm Gear.**.....Cleveland Worm Gearing affords advantages for practically any power job. Steel worm on bronze gear reduces motor speed evenly, efficiently, and quietly. Request Catalog 400.
345G Cleveland Worm & Gear Co.
- Package Drive.**.....How the Ultra-Speed package drive makes possible increased flexibility of machines and equipment is told in bulletin 51B8166A. Unit is d.c. conversion device, 5 to 200 hp.
345H Allis-Chalmers Mfg. Co.
- Expanders, Boiler Tube.**.....16-page bulletin describes general types of Elliott boiler tube expanders for fast, efficient tube rolling jobs. Also dimensions, prices, other data. Bulletin Y-46.
345I Elliott Co.
- Expanders, Tube.**.....119 p. catalog contains information about tube expanders & associated tools used for tool rolling, methods, tool maintenance, expansion calculations & charts, etc. Catalog 88.
345J Thomas C. Wilson.
- Expanders, Tube.**.....32 p. catalog contains specifications of product line of Ideal Tube Expanders and Cutters, plus necessary information pertaining to a line of Operating Accessories. Catalog 81.
345K Gustav Wiedeke Co.
- Fastenings.**.....150 000 000 standard fastenings—bolts, nuts, screws, rivets, washers, are ready for immediate delivery. Results of independent laboratory tests prove superior strength. Form No. 126.
345L H. M. Harper Co.
- Fastenings.**.....New 24 p. semi-technical Flo-Form brochure presents valuable information and cost-saving ideas on corrosion-resistant fastenings. Complete details available in Form 613 Brochure.
345M H. M. Harper Co.
- Fastenings, Corrosion-Resistant.**.....Harper Flo-Form Process employs highly special techniques to produce parts of economic design, with greater strength and durability, without scrap loss. Flo-Form Cat.
345N H. M. Harper Co.
- Floats.**.....If you have a liquid level control problem that involves a float, send for Harris Float Catalog. Complete technical data on various types and sizes of floats in several suitable metals.
345O Arthur Harris & Co.
- Gasket Materials.**.....Company offers information & prices for "Lo-Flo" Gasket Materials, comprised of Teflon & inert fillers. Withstands temperatures up to 600 degrees with no distortion.
345P Balfour Industries.
- Gaskets.**.....Do not show any signs of creeping or distress at 1650 psi steam pressure—850°F. Gaskets come in all sizes and shapes. Detail on asbestos sheet packing and gaskets in Bulletin CE969.
345Q Durabla Mfg. Co.
- Gaskets.**.....Booklet "Color-Plast Gasket & Shim Stock" and color-coded size selector describes washers, gaskets, shims, seals and spacers. Each of 12 gages from 0.001 to 0.030 is identified.
345R General Gasket.

How the Reader Service Postcards Can Help You

Reader Service postcards can help you get more information. They're inside the back cover: easy to use, reliable, speedy.

You can use these postcards as often as you please during the coming year to get more information on any chemical, material, equipment, process, service or literature item listed in these coded sections:

New Chemicals & Materials . . . p. 170
New Equipment & Accessories . . p. 236
Products Index p. 498

Every item in each of these sections is coded. Simply write the code numbers of the items in which you're interested, fill in your name and address, then mail. Answers come to you direct from the manufacturers.

For more information on items mentioned in the ads of this issue, use the page number as code number. Write this number on the postcard. And when ads mention more than one item, the Product Index (p. 498) will give you the right code for the one you're interested in.

Postcards can't be used for items listed in the Inventory of Plants but they can be used for the literature items which start on p. 162.

New Mechanical Equipment

Literature Available

Gaskets—
Rings, Rasching & Lessig

Gaskets......48-page catalog on industrial gaskets, mechanical packings, etc. contains recommendation chart, material comparative cost graph, fault elimination chart, and mechanical formulas.
346A Rhopac, Inc.

Gaskets......Chemiseal teflon jacketed gaskets for standard flanges and glass-lined steel connections and for corning conical flanges, also reducers. Company gives details in Catalog No. AD-154.
345B U. S. Gasket Co.

Gaskets......Tray-seal gaskets give a better seal against leakage across fractionating trays. Made of pure asbestos fiber and knitted monel wire. Detailed information in Bulletin TS-1.
407 *Metal Textiles Corp.

Gaskets......With spiral wound Guardian gaskets you can vary the compressibility to meet different pressure requirements and established bolt loads by changing the number of windings. Cat. AD-104.
462-3d *Garlock Packing Co.

Gaskets & Adaptors......Company offers literature on Jacketed Gasket, Type 1-339 WA, Chemiseal Snap-on Type 820 Gaskets and Chemiseal Adaptors No. 2-CRS. Request a copy of Bulletin TG-953.
346C U. S. Gasket Co.

Gaskets, Teflon......Teflon gaskets are impervious to practically every chemical or gas and unaffected by temperatures from -100° to +482°F. depending on inert material. "The Best in Teflon."
346D Crane Packing Co.

Gaskets & Rings, Teflon......Bulletin describes Chemlon gaskets and "O" rings, made from practically indestructible "Teflon". Gives styles, pictures, specifications. Request Bulletin P-327.
346E Crane Packing Co.

Gaskets, Teflon......The ideal seal for many process applications is a Flexitallic gasket with teflon trapped between edges of stainless steel. Request folder, "Teflon in Flexitallic Gaskets."
346F Flexitallic Gasket Co.

Gaskets, Teflon-Jacketed......Illustrated reference covers Chempro's lines of teflon jacketed gaskets, solid ring gaskets, teflon expansion joints and special teflon gaskets. Bulletin No. CP553.
346G Chemical & Power Products.

Gears......Dutl-Rated Gears are heat-treated for increased tooth surface hardness & produced to high precision tolerances. Offers information & technical data on styles & sizes. Manual DR-2.
346H Foote Bros. Gear & Mach.

Gears, Worm......Offers a line of quality standard & special worm gear sets. Available for special operating & service conditions. Request catalog of ratings & dimensional data. Manual SW-1.
346I Foote Bros. Gear & Mach.

Hydraulic Systems......Revised bulletin illustrates how Greer hydro-pneumatic accumulators can reduce the size, complexity and operating costs of hydraulic molding equipment. Bulletin 900.
346J Greer Hydraulics.

Magnets......Company offers free booklet entitled "Magnetic Ideas". All Eriez magnets, used in separating equipment, are non-electric and self-contained. They need no wires or attachments.
346K Eriez Mfg. Co.

Magnets, Separating......Stearns "Magman" permanent plate magnet has exclusive offset air gap feature to stop tramp iron that ordinary plate magnets can't hold. Complete details in Bul. 1071-B.
346L Stearns Magnetic Products.

Packings......Construction of Garlock Chevron permits free operation of rods or plungers at all pressures. No further adjustments are needed after initial gland adjustment. Folder AD-115.
346M Garlock Packing Co.

Packings......Savings in maintenance costs when you use spiral or die-molded ring packings. Long uninterrupted sealing service with less wear on rods, shafts, sleeves or stems. File No. DMCE.
346N Durametallic Corp.

Packings, Asbestos Sheet......Durable asbestos sheet packing is the gasket material suitable for all temperature-pressure combinations. Used for sealing water, steam, oils, gases. Bulletin CE-37.
346O Durabla Mfg. Co.

Packings, Asbestos Sheet......Features Klinger's compressed asbestos sheet packing for every purpose. Makes available the Klinger Master Catalog which describes the range of products.
346P Klinger Corp. of America.

Packings, Belmont......For standard services "Belmont" asbestos, copper-asbestos and flax packings... lubrication is locked in, porosity is obtained, packing life is longer. Request Bulletin 4-P-8.
346Q U. S. Gasket Co.

Packings & Gaskets......Packings and gaskets when made with TEFLON tetrafluoroethylene resins save you considerable decreased downtime and lower maintenance costs. Data.
325 *Du Pont Co.

Packings, Mechanical......In Bulletin P-325 you'll find complete service and technical details on chemically inert mechanical packings fabricated from Teflon. Includes specific recommendations on applications.
346R Crane Packing Co.

Packings, Mechanical......4 p. folder lists the all-purpose packings of asbestos, duck fabric, teflon, etc. that company has developed for use in a wide range of applications. Copies on request.
346S Flexrock Co.

Packings, Mechanical......24 p. condensed catalog on mechanical packings contains 246 types for every service in industry. Features recent packing developments. For full details, request Catalog 56.
346T U. S. Gasket Co.

Packings, Plastic......"Versal-Pak" is primarily designed for solvent and oil service up to 350°F. and 600 psi. Also does a superior job on water solutions, weak acids and caustics. For details see booklet.
346U Raybestos-Manhattan.

Packings, Ring......Furnishes complete descriptions of the Chempro lines of teflon ring packings, teflon impregnated asbestos packings, V-type packings and the patented teflon seal cage. Bulletin CP552.
346V Chemical & Power Products.

Packings, Saddle......Packs without "nesting" surface area is exposed area, more uniform free space, better liquid distribution, better drainage, less weight. Full data in Bulletin S-29.
346W U. S. Stoneware.

Packings, Teflon......Dura plastic teflon packing provides long uninterrupted sealing on all liquids except molten alkali metals and some fluorine compounds in the higher temperatures. Bulletin 461 CE.
346X Durametallic Corp.

Packings, Teflon......Lattice-Braid packings of teflon reduce maintenance, lower replacement costs, reduce wear on pistons and shafts, and increase productive capacity. Full details in Catalog AD 131.
346Y Garlock Packing Co.

Packings, Teflon......"Teflon" is used because it is impervious to industrial acids and caustics; has no known solvent; has zero water absorption; is unaffected by weather. "Teflon" Accessories booklet.
346Z Raybestos-Manhattan.

Packings, Teflon......For all-chemical service "Chemiseal" Teflon packings. Extremely antilhesive, requires no lubricant, lasts for months in service where other packings fail in hours. Bulletin T P-1155.
346AA U. S. Gasket Co.

Packings, Teflon......Chemiseal packings of duPont Teflon—impervious to practically all chemicals—they won't deteriorate, they won't contaminate, they won't "freeze" shaft action. Catalog AD-155.
346BB U. S. Gasket Co.

Packings, Teflon......Lattice braid Teflon fiber packings very good life on pumps handling difficult chemicals. Chemically inert, tough, resilient and flexible. Catalog AD-131.
462-3a *Garlock Packing Co.

Packings, Tower......Booklet TP54 tells how to pack a tower, largest recommended diameter for a packed tower, proper ratio of packing size to column diameter, etc. Data on packing rings, saddles.
346CC U. S. Stoneware Co.

Packings, Valve Stem......Describes 2 types in which they are available (braided of asbestos yarns, and plastic), manner in which they are made and shapes commonly used. Bulletin 6905.
346DD Raybestos-Manhattan.

Packings, V-Ring......"Pressure-Sealing" V-Ring packings can be used for reciprocating rods and valve stems handling water, oil, solvents, steam, air and gas. For details, request Catalog 4-R-10.
346EE U. S. Gasket Co.

* From advertisement, this issue

1957 INVENTORY

Reducers, Motor.....Motors can be interchanged or replaced in minutes with the all-steel Falk motoreducer. Replacement is not limited to original make of motor. More information in Bulletin No. 3100.
347A Falk Co.

Reducers, Speed.....Cleveland Worm Gear Speed Reducers are designed for tough jobs which demand dependable performance under difficult conditions. Free Bulletin 145 gives data on all models.
347B Cleveland Worm & Gear.

Reducers, Speed.....Feature all advantages of shaft-mounting... all proven performance & economy features of Dodge Torque-Arm speed reducers—available for your big jobs. Bulletin A-637.
347C Dodge Mfg. Co.

Reducers, Speed.....Bulletin 1105 combines complete information on the Falk line of concentric shaft and right-angle speed reducers for applications up to 140 hp. Selection tables give info at glance.
347D Falk Co.

Reducers, Speed.....Complete details on an improved and extensive line of speed reducers are presented in Bulletin CD-218. Use of double-enveloping worm gearing provides more load-carrying capacity.
347E Michigan Tool Co.

Reducers, Speed.....Company offers specifications and ratings on economical "In-Line" speed reducers, developed to meet the need for heavy-duty, low-cost gear drives. Request details.
347F Philadelphia Gear Works.

Reducers, Speed.....Brochure covers three styles of speed reduction: integral gear motors, speed reducers with separate motors, and speed reducers alone. Details are available in Bulletin 191-50M-8-56.
347G Sterling Electric Motors.

Reducers, Speed.....Illustrated 8-page brochure shows the complete line of Strong-Scott speed reducers. Available from stock, units are reported ideal for speed reduction on $\frac{1}{2}$ to 50-hp.
347H Strong-Scott Mfg. Co.

Reducers, Vertical Speed.....Single casing and bolted-on motor construction makes mounting and installation simple and eliminates base plates and couplings. For details on MotoReducer, Cat. MR-54.
347I Philadelphia Gear Wks.

Rings, Forged & Rolled, Seamless.....Bulletin on production of seamless rings from ALCO-made steel. Chart showing weights for rings from one inch to 145 inches overall-diameter.
347J Alco Products.

Rings, Pall.....In absorption, distillation or extraction the Pall Ring offers advantages of major importance. Available in carbon steel, stainless steel, aluminum and copper. Bulletin TP-54.
347K U. S. Stoneware Co.

Rings, Raschig & Lessig.....Metallo—prime manufacturers of Raschig and Lessig Rings... from inventory or custom designed to your specifications. Request your complete information, specifications.
347L Metallo Gasket Co.

wedge-lock"

cal

The Chempro line of external "wedge-lock" seals does not require a mounting gland, or any modification to the stuffing box, to align and hold the Chempro seal in position. The patented "wedge-lock" design automatically seats the seal stator in the stuffing box in perfect face-to-face alignment with the seal rotor on the shaft. Simple and easy to install—in only 20-30 minutes.

OTHER ADVANTAGES

- Completely Interchangeable with Packing
- Simple in Design—Only 8 Parts
- Chempro Teflon® Shaft Packing—Chemically Inert
- External Seals Adjustable After Installation
- Parts Interchangeable Between Seal Styles
- External and Internal Seals Available—From Vacuum to 100 psi

Literature Available

Rings, Raschig, Porcelain—
Unions, Forged Steel

Rings, Raschig, Porcelain.....Rings are smooth, completely vitrified, strictly non-porous and iron free. They are chemically inert to acids of all concentrations (except hydrofluoric). Bulletin.
348A Lapp Insulator Co.

Rings & Stems.....Modern, trouble-free OIC end-seated seat rings and T-head stems at no extra cost will reduce your maintenance overhead many times. Streamlined flow-through. Iron Valve Bul. 1005.
348B Ohio Injector Co.

Rings, Teflon.....C-V Rings will handle all industrial acids, alkalis, solvents, organic and hydraulic fluids... temperatures from -120°F. to +500°F. Complete details in Bulletin T-110.
348C Crane Packing Co.

Rupture Disks, Graphite.....Impervious graphite rupture disks have no fatigue factor, studies indicate. Can be used at 75% of rated burst. Full information in Catalog No. 315. Request a copy.
348D Falls Industries, Inc.

Saddles, Intalox.....Reference offers technical data and specifications on Intalox Saddles. Including comparative charts showing relative pressure drops, flooding limits, etc. Bulletin S29-R.
348E U. S. Stoneware Co.

Saddles, Rings & Fittings.....Line of Lenape elliptical manhole saddles, rings and fittings for pressure vessels described in bulletin. Specifications, finish and application data. Bulletin 565.
348F Lenape Hydraulic Pressing.

Seals, Fuel Resistant.....Leaflet tells about use of LS-53 fluoro-silicone rubber in construction of seals that have high resistance to fuels, together with extreme flexibility at low temperature.
348G Connecticut Hard Rubber Co.

Seals, Hermetic.....Bulletin describes Series N-1000 Hexseals featuring high pressure switch boots used to replace standard panel mounting hardware on toggle switches. Send for your Bulletin Hex-7.
348H Automatic & Precision Mfg.

Seals, Mechanical.....For pumps, agitators, autoclaves and similar processing equipment. Complete story of line of Chemoro "wedge-lock" mechanical seals in Bulletin CP551 and 575.
348I Chemical & Power Products.

Seals, Mechanical....."John Crane" Seals, specially engineered for the Chemical Industry, eliminate loss of expensive and corrosive fluids. Company gives information in seal catalog.
348J Crane Packing Co.

Seals, Mechanical.....Valuable reference for maintenance engineers and original equipment designers. Illustrates and describes types of Dura seals engineered to meet your specifications. Catalog No. 480.
348K Durametallic Corp.

Seals, Mechanical.....Company's "Mechanipak" package seals can be installed on chemical process pumps to eliminate leakage and shaft wear, reduce downtime, cut maintenance costs. Folder AD-150.
348L Garlock Packing Co.

Seals, Mechanical.....Combining chemically impervious teflon with a balanced bellows design—Chemiseal mechanical seals last longer and give unsurpassed performance. Full details in Bulletin MS-1155.
348M U. S. Gasket Co.

Seals, Mechanical.....Chempro line of external wedge-lock seals does not require a mounting gland or any modification to the stuffing box to align and hold the seal in position. Buls. CP551 & CP575.
347 "Chemical & Power Prods.

Seals, Mechanical.....Chemiseals have provided a long and still growing list of successful applications against strong acids, alcohol, alkalis, hydrocarbons, etc. Request Catalog Ms-1155.
4623c "Garlock Packing Co.

Seals, Mechanical, Rotary.....Company announces the availability of an 8 p. reference which shows how you get maintenance-free sealing that slashes fluid mixing cost to a new low. Bulletin B-111.
348N Mixing Equipment Co.

Seals, Mechanical, Stuffing Box.....Offers single mechanical seal for all standard centrifugal pumps. Pumps high temperature liquids for long periods without shutdown. Circular 189.
348O Dean Bros. Pumps.

Seals, Packaged.....Request "John Crane" Type 9 Seal wherever "hard-to-handle" liquids or gases are involved. Temperatures from -120° to 500°F, pressures to 750 psi. Facts and engineering data.
348P Crane Packing Co.

Seals, Selector.....The Sealol Flexi-box Selector enables you to decide on seal type size and materials for your requirements. Covers 48 products handled in the process industries. Request Selector.
348Q Sealol Corp.

Seals, Shaft.....Bulletin gives overall information on line of shaft seals for every liquid handling service, from hot or cold water to the most destructive corrosives. Bul. S-204-3.
348R Crane Packing Co.

Seals, Shaft.....Teflon wedge shaped sealing member is impervious to chemicals and solvents—permits high temperature service to 500°F. For details on the Tyve 9 Shaft Seal, get Bulletin S-205-2.
348S Crane Packing Co.

Seals & Stuffing Boxes.....Corrosion resistant seals and stuffing boxes for "E", "P" and "R" series vessels are discussed in Bulletin No. 938. Interchangeability of seal and stuffing box is stressed.
348T Pfaudler Co.

Sheaves.....Illustrated catalog presents line of Maurey Pul-Grip Q-D Sheaves, standard Multi-V Sheaves, & special made-to-order sheaves. Handling information, dimensions. Catalog MVD-56.
348V Maurey Mfg. Corp.

Speed Variators.....Cleveland Speed Variators give stepless speeds over a full 9:1 range, 1/2 to 3 times input speed. Output speed manually or automatically regulated. Bulletin K-200.
348V Cleveland Worm & Gear Co.

Sprockets.....Taper-Lock double strand sprockets are available—ready for the shaft without re-machining. There is no flange, no collar, no protruding part. Flush design means safety. Bulletin A-644.
348W Dodge Mfg. Corp.

Turbines.....Both regular type wheel or wide bucket "L" type wheel give you Coppus proven high quality and low maintenance cost. "L" type wheel is for use where water rate is essential. Bul. 135.
348X Coppus Engineering Corp.

Turbines.....Simplicity and adaptability of Elliott YR Turbine give it advantages that put it well ahead for pump, fan, compressor and other machine applications. Details in Bulletin H-22A.
348Y Elliott Co.

Turbines, Gas.....The Clark Mark TA gas turbine is the most modern, compact and efficient power plant combination you can install. For information on Clark turbines, request Bulletin 142.
348Z Clark Bros. Co.

Turbines, Gas.....Versatile Westinghouse gas turbine, with many combinations of output in shaft power, compressed air and hot gas can be used to streamline processes. Process sketches.
348AA Westinghouse Electric Corp.

Turbines, High-Speed.....Well-designed, efficient seals cut steam leakage, reduce maintenance costs of G-E High-speed Turbines. Also feature low-cost, easily replaced carbon packings. Bul. GEA-6232.
348BB General Elec. Co.

Turbines, Impulse.....Bulletin covers applications, pressure rises, typical arrangements, Voican turbines, shop practices and methods, vertical impulse turbines and power recovery. Bulletin No. 147.
348CC S. Morgan Smith Co.

Turbines, Mechanical Drive.....From smallest type JR up to the largest multistage, Elliott turbines have the design, construction and flexibility to do the job well. Information and descriptive bulletins.
348DD Elliott Co.

Turbines, Steam....."Advances in the Field of Large Steam Turbines" tells about developments in today's steam turbines and how they are the design forerunners of the future. Reprint of speech.
348EE Allis-Chalmers Mfg. Co.

Turbines, Steam.....Terry solid-wheel steam turbines are almost indestructible, with their single-piece wheel, unfoulable blades, negligible blade wear. Request your copy of Bulletin S-116.
348FF Terry Steam Turbine Co.

Unions, Forged Steel.....W-S forged steel unions machined in accordance with ASTM material specifications A-105, Grade 2. Available with screw-end & socket-welding end pieces. Bul. U-1.
348GG H. K. Porter Co.

* From advertisement, this issue

Bag, Multiwall

Speeds up packing.
(349A)

... Multiwall bag has vented tape on ends to speed and clean up packing of aerated materials. These bags

pack compactly with more uniform weight.—*Regis Paper Co., New York 17, N. Y.*

Bags, Multiwall

Foil interliner blocks moisture, odor or gas.
(349B)

... Products shipped in Foil-Wall line of multiwall sacks receive maximum protection against moisture, odor, gases. Compared with polyethylene-walled sacks, cost of Foil-

Wall is slightly higher; yet protection against moisture vapor is three or four times greater than the polyethylene sacks.—*Hudson Pulp & Paper Corp., New York 22, N. Y.*

Bottle, Polyethylene

For foods, pharmaceuticals.
(349C)

... Polyethylene bottle for foods, pharmaceuticals, cosmetics can withstand sterilization at 250 F. for 30 min. Div. of Pharmacology of USDA

states bottle is acceptable as container or package for above products.—*Plastic Container Div., Continental Can Co., Chicago 13, Ill.*

Cleats, Conveyor Belt

Screw onto any belt.
(349D)

... Molded-neoprene, screw-on cleat can convert any conveyor or elevator belt into a cleated belt. Simple op-

eration is done with nothing more than a punch and screw driver.—*T. H. Hinchcliffe, Pasadena 2, Calif.*

Closure, Polyethylene

For molded poly drums.
(349E)

... Polyethylene closure for ICC 2-S molded polyethylene drums became standard February 1, 1957 for 15-, 30- and 55-gal. drums and optional

for 5-gal. drum. Closure eliminates possible damage to flange, threads; extends drum life.—*Delaware Barrel & Drum Co., Wilmington, Del.*

Closures, Polyethylene

Expanded line. (349F)

... "CaPlugs" are ideal as dust and moisture seals and shipping protectors for delicate fittings, valves, hydraulic components, machined parts. Polyethylene closures can also be

used for masking purposes during dipping, paintings, vacuum plating. Closures are available in 10 standardized designs.—*Protective Closures Co., Inc., Buffalo 23, N. Y.*

Container, Shipping

Polyethylene, for liquid or powdered chemicals.
(349G)

... Almost any liquid or powder requiring protection from contamination, spoilage, corrosive action or moisture can be shipped, distributed or stored at lower cost in Cubitainer. Designed for one-way shipment, package consists of semi-rigid, cube-shaped insert of polyethylene, and an

outer carton of corrugated paper-board. As received, Cubitainer comes knocked down with insert collapsed and cartons folded. Conventional packaging equipment can be used to inflate insert, set up carton, assemble components.—*Hedwin Corp., Baltimore 11, Md.*

Container, Unit

Offers freight-rate gains.
(349H)

... Bulk-handling costs incurred in storing and shipping granular or powdered materials can be cut appreciably through use of Deltainer portable steel bin. Savings ranging from \$3-\$15/ton on purchased commodities are possible by buying bulk quantities and using new equipment for delivery. Entire Eastern Div., Assn. of American Railroads has approved Deltainer as removable, but integral part of special railway car. Thus, users will pay freight only on net content of containers and not on the containers themselves. Three different Deltainer sizes are available.—*Delta Tank Mfg. Co., Inc., Baton Rouge, La.*

**Conveyor**

Oscillating type. (349I)

... Coilmount oscillating conveyor, designed for intermediate ranges and capacities, supplements light-duty Flexmount and heavy-duty Torqmount

conveyors in Link-Belt line. Conveyors come in various lengths, trough widths and trough thicknesses.—*Link-Belt Co., Chicago 1, Ill.*

New Packaging & Handling Equipment 1957 INVENTORY

These are your Reader Service key numbers

Conveyor, Bag

Adjustable speed. (350A)

... Bag conveyor has adjustable speed and telescoping frame that varies conveying length from 7 to 12 ft. Pulleys

are self-cleaning, belt is 5-ply neoprene over duck.—*Richardson Scale Co., Clifton, N. J.*

Conveyor, Belt

Unusual cover. (350B)

... Belt conveyor for packages of all types from cans to bags has unusual three-stage cover. Individual seg-

ments of cover grip uneven surfaces.—*Goodyear Tire & Rubber Co., Akron 16, Ohio.*

Conveyor, Belt

Maintains perfect alignment of steel web. (350C)

... Perfect belt alignment and reduced initial cost are reported for Tru-Track steel-belt conveyor. V-ropes are bonded lengthwise to underside of standard Sandvik Steel belt. Ropes travel over sheaves to provide positive

tracking control. Standard V-rope sheaves used with design eliminate need for more expensive crowned pulley used formerly.—*Sandvik Steel Belt Conveyors, Div. of Sandvik Steel, Inc., Fair Lawn, N. J.*

Conveyor, Screw

For most free-flowing bulk materials. (350D)

... "Beeline" screw conveyor has "automatic straightness" so that a 100-ft. run of conveyor will be straight within a fraction of an inch without costly matching, fitting and customary installation adjustments. Easier in-

stallation, greater operating efficiency, sharply reduced maintenance compared with other screw conveyors are added advantages of this new conveyor.—*Fort Worth Steel & Machinery Co., Fort Worth, Tex.*

Crane, Mobile

Can move any load shape to top limit of 10,000 lb. (350E)

... KE Karry Krane can move readily any load shape that can be placed under its boom. For reaching into road trucks and box cars, there's a choice of boom lengths, adjustable to six positions. For greater versatility,

optional hydraulic power topping is available to raise and lower boom. Karry Krane lifts at 75 to 108 ft. per min. and lowers at 165 to 240 ft. per min.—*Hyster Co., Portland 8, Ore.*

Elevator, Cable

Rubber-wheel drive eliminates sprocket troubles. (350F)

... Hi-Lift cable-veyor elevators use standard steel cable within conveyor to reduce greatly number of parts that can wear and cause trouble. Low-cost buckets attached to cable are free to turn so wear isn't concentrated on one edge. Elevators handle bulk materials rapidly on low-

cost basis. Sprockets commonly used in elevators have been replaced by a quietly operating, abrasion-resistant, rubber-tire drive.—*Hapman Conveyors, Inc., Div. of Hapman-Dutton Co., Kalamazoo, Mich.*

Extensions, Fork

For pallet-type electric trucks. (350G)

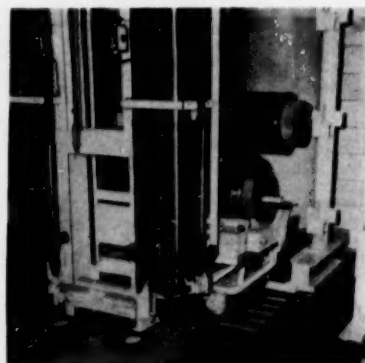
... Special fork extensions increase versatility of a line of electric trucks. Attachments slip easily on to standard forks, doubling their length. Thus, with extensions, pallet trucks can han-

dle long, light, bulky loads on either skid platforms or open-face pallets. Attachments come in wide range of sizes.—*Lewis-Shepard Products, Inc., Dept. R-39, Watertown, Mass.*

Film Handling System

Handles, stores sensitized film in dark. (350H)

... With special handling system for sensitized film Ansco (Binghamton, N. Y., plant) has utilized dark-room storage space to fullest and has eliminated constant expense of huge, light-proof metal containers. System stores rolls selectively in tiers on racks. One man operates equipment, eliminating manual handling and possibility of accidental contact and resultant damage. Movement, progression and placement—all done in the dark—are controlled mechanically with absolute accuracy. Bullseyes revealed by safelights indicate roll pickup spots.—*Chicago Tramrail Corp., Chicago 23, Ill.*



FOR MORE INFORMATION on any item in this section, write its code number on one of the Reader Service postcards (inside back cover) and mail. It's fast and easy.

Tri-Sure® Closures give security to every shipping container from 1 gallon to 55 gallons

Tri-Sure CLOSURES FOR PAILS



Tri-Sure Closures for K-T Cans



Tri-Sure
Reversible
Spout
Assembly



Tri-Sure
Push-Pull
Spout
Assembly



Tri-Sure
Polyethylene
Threaded Spout
Assembly



Tri-Sure
Tru-Pour
Collapsible
Spout Assembly



CLOSURES

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American Flange & Manufacturing Co. Inc., Villawood, N. S. W., Australia

Compania Mexicana Tri-Sure S/A, Avenida No. 1 y Calle Piramide, S. Bartolo Naucalpan, E. de Mexico, Mexico

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Seal



Tri-Sure
Polyethylene
Plug



Plug



Tri-Sure
Polygonal
Flange



Flange



Tri-Sure
Coated Flanges
and Plugs



THE best protective packages are steel shipping containers—and the most efficient closures for these containers are Tri-Sure®.

When you ship products in drums, give them the protection of Tri-Sure's interengaging Flange, Plug and Seal—recognized by shippers the world over as the best security from leakage, tampering and contamination—and the best way to build good will.

When you ship products in pails and cans, let Tri-Sure Closures help your selling by making your containers more appealing—easier to pour, stack and re-use. Customers prefer pails and cans that are equipped with Tri-Sure Nozzles, Spouts, Seals and Caps, or the unique Tri-Sure assemblies—including the new DEEP recessed fittings for Tri-Sure Reversible Spouts which effect a tamper-proof closing.

Ask your supplier now for information on the extensive line of Tri-Sure Closures for drums, pails and cans. If you have a closure problem, there are Tri-Sure sales engineers near your plant who will be glad to assist you.

*The "Tri-Sure" Trademark is a mark of reliability backed by over 35 years serving industry.



New Packaging & Handling Equipment 1957 INVENTORY

Liner, Tank

Flexible plastic, corrosion-proofs tanks. (352A)

... Flexi-Liner protects both old and new steel or iron tanks against corrosion. Composition of plastic bag can be varied to withstand strong or weak inorganic acids and alkalis, strong salt solutions and many hydrocarbons.

Liner is complete container by itself. Tank acts merely as a structure to support and back up cylindrical plastic bag. There's no bond between liner and rigid tank wall.—*Flexi-Liner Co., Arcadia, Calif.*

Packer, Bag

Open-mouth bags filled, closed automatically. (352B)

... VredOMatic packer extends fully automatic packaging to filling of open-mouth multiwall bags. Packer positions, opens, fills, closes and sews

(with or without tape) open-mouth multiwall bags holding 25 to 125 lb. of free-flowing solids.—*St. Regis Paper Co., New York 17, N. Y.*

Puller, Car

Moves car, barges easier and cheaper. (352C)

... With improved two-way double-drum car puller, operator can move as many as 12 or 14 loaded cars along double-track siding. Double drum design permits moving cable (ending in

car hooks) in either direction. Thus car hooks can be moved by puller directly without having to be positioned manually.—*Hewitt-Robins, Inc., Stamford, Conn.*

Rack, Drum

Drains drums. (352D)

... With Revere dispensing rack one man can put drum on rack, roll it to the proper location, then adjust the

drum to the proper height by cranking.—*Standard Safety Equipment Co., Chicago 10, Ill.*

Scale, Automatic

Operates under hazardous conditions. (352E)

... GGG-38 automatic scale meets Underwriters' Specifications for Class I, Group D conditions for hazardous gases or vapors. Discharge mechanism is operated by air, rather than usual solenoid-activated device. Mo-

tor and electrical components are special for hazardous operation. Scale was designed for weighing cellulose acetate, polyethylene, other plastics and petroleum byproducts.—*Richardson Scale Co., Clifton, N. J.*

Scale, Bagging

No loose weights. (352F)

... Model 700 bagging scale attaches to feed mixer or hopper, has weigh-beam which eliminates loose weights.

Will handle paper, cotton or burlap bags at 6-8/min. rate.—*Burrows Equipment Co., Evanston, Ill.*

Sheet, Tank Liner

Compensates for thermal dimension changes. (352G)

... 30 x 60 x 3/16 in. Boltaron 6200 unplasticized polyvinyl chloride tank liner sheet has built-in corrugations to absorb expansion and contractions of installed rigid tank liners. Sheets

can be used to line tanks of almost unlimited size since expansion and contraction are confined to single sheets.—*H. N. Hartwell, Industrial Plastics Div., Boston 16, Mass.*

Solids Handling system

Jet stream unloads and dissolves solids in single, uniform operation. (352H)

... System now used to unload and dissolve sugar rapidly and efficiently may find use with other commodities shipped in bulk granular form. Based on device called Liquilizer, system unloads sugar and converts it to a heavy syrup in one continuous, self-regulating operation. 70-ton shipment of sugar can be unloaded and dissolved within about 5 hr. And it takes one man only five minutes to connect a car into system and start operation. Five installations, now operating on sugar will save enough money to pay for themselves within 2-5 yr.—*Amalgamated Sugar Co., Ogden, Utah.*



Tanks, Collapsible

Used where transportation hampers tank storage. (352I)

... Collapsed rubberized nylon tank holds 15,000 gal. and extends to 45 x 11 x 6 ft. when filled. Built-in pressure-release system prevents rupture of tank from overfilling. Tanks were

designed for oil, water and other liquids in areas where storage or transportation problems might occur.—*Firestone Tire & Rubber Co., Magnolia, Ark.*

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New Packaging & Handling Equipment 1957 INVENTORY

Tractor, Industrial

Powered by motor-generator drive unit. (354A)

... Model GLT four-wheel tractor uses high-torque drive that has been well proven on railroad locomotives. Inherently high efficiency of drive reduces fuel consumption more than 25%. Also, elimination of clutches,

torque converters and mechanical or fluid transmission drastically reduces cost of maintenance and service parts. Too, engine life is longer.—*Automatic Transportation Co., Chicago 20, Ill.*

Tubing, Nylon

Large diameter. (354B)

... Efficient liquid handling coupled with low-cost installation and maintenance characterize line of large

diameter, thin-wall nylon tubing for chemical use.—*Keystone Plastics Co., Inc., Union, N. J.*

Warehouse, Floating

To operate between Trenton and Jacksonville. (354C)

... Increasing quantities of soap products, shortening, lubricating oils and paint will travel along the Eastcoast inland waterway. For C. G. Willis, Inc., Paulsboro, N. J., has added to its

fleet a 256-ft. barge capable of carrying 2,900 short tons of cargo. An identical companion will be delivered soon.—*Dravo Corp., Neville Island, Pittsburgh 25, Pa.*

Warehouse, Framed

Built in six weeks. (354D)

... Giant warehouse erected over pile of 80,000 tons of potash at Carlsbad, N. M., is 580 x 180-ft. structure of arched bent design with timber buttresses anchored into continuous,

concrete pilaster wall which supports glulam Douglas fir arches. Galbestos, corrugated iron roofing with asbestos covering, forms roof.—*Timber Structures, Inc., Portland, Ore.*

Literature Available

NEW PACKAGING & HANDLING EQUIPMENT

Bag Closers......Information on company's portable bag closers, designed for handling textile and paper bags. Requires no installation, supports or plant space. Closes 100 lb. bag in less than 6 sec. 354E Dave Fischbein Co.

Bag Closers......Circular gives details on Class 2100 portable electric bag closer. Ideal for limited or intermittent operations, unit closes bags of cotton burlap, jute, multi-wall or laminated paper. 354F Union Special Machine Co.

Bag Packer......Kraftpacker automatic open-mouth-bag filling machine described in a brochure accommodates weights from 25 to 200 lb. Users report average rate 18 bags/min. for full-days runs. 354G Kraft Bag Corp.

Belts, Conveyor......Information available in Catalog 25CB includes designations of conveyor belts for general heavy duty service, gives tension ratings for splices, minimum pulley diameters. 354H Raybestos-Manhattan.

Belts, Conveyor......Conveyor belt engineered for small diameter pulleys is described in a Bulletin. Belt is said to combine the flexibility of solid woven belting with properties of stitched canvas. 354I Russel Mfg. Co.

Bins, Bulk Material......Vertical or horizontal styles are available for any plant layout. To improve your plant's bulk storage and handling, company makes available Bulletins 529 and 549. 354J Day Co.

Bins, Bulk Storage......Patented cable suspension anti-bridging discs keep products free flowing in Day bulk storage bins. These bins are available in black iron, galvanized or stainless steel. Details. 354K Day Co.

Bottles, Polyethylene......Squeeze operated polyethylene dropper bottles with close control of flow rate and drop size now offered; said to be contamination proof, need no bulb fittings. TD1253. 354L U. S. Industrial Chem. Co.

Boxes......Carboy boxes are quality built to meet ICC regulations. Features give all-point protection, reducing hazards and breakage, with ease in handling, compact loading. Complete data. 354M Treen Box Co.

Boxes, Corrugated......"How to Engineer Corrugated Shipping Boxes" describes each step in development of modern shipper, study of product to be packaged, original engineering. Request a copy. 354N Hinde & Dauch.

Boxes, Corrugated......Reduction of packaging cost is detailed in "How to Ship More Economically in Corrugated Boxes". Included in the 24-page booklet are advice on packages and shipping department layout. 354O Hinde & Dauch.

Boxes, Pallet......8 p. catalog on Generalift standard industrial wire-bound pallet boxes describes the many ways pallet box bulk handling can be applied and provides complete specifications. 354P General Box Co.

Bulk Material Handling......Day bulk material storage and handling equipment is cheaper, safer, cleaner and more efficient than manual material handling. Send for your copy of Bulletin 574. 1254Q *Day Co.

Carriers......Carriers are permanently sealed, pre-lubricated, economical to install and maintain, have quick-change roller. Also, complete line of bulk material handling products. Catalogs 355 & 60. 354R Stephens-Adamson Mfg. Co.

Clamps, Lift Truck......Line of clamping attachments augments previous line for fork-lift trucks. Photos show clamps, sideshifting clamps, rotators and rotating clamps. Dimensions and specs. 354S Allis-Chalmers Mfg. Co.

Closures, Protective......Revised illustrated file folder on the recently expanded line of CaPlugs polyethylene closures summarizes data on this line of caps and plugs that safeguard products in transit. 354T Protective Closures Co.

Cleaners, Belt......Protects and extends the life of valuable belts. Adjustable to any width... easily installed... no moving parts... no power drive required. Request Bulletin 1754. 354U Stephens-Adamson Mfg. Co.

Coding Machine......4 p. bulletin describes the coding and imprinting attachment for wrapping and bundling machines. Liberally illustrated with photographs and schematic drawings, bulletin shows many uses. 354V Adolph Gottschlo, Inc.

Container, Shipping......Company's Deltainer shipping and storage container is described and illustrated in detail in bulletin now available. Can be as used part of unit railroad car. 354W Delta Tank Mfg. Co.

*From advertisement, this issue

Canco research meets the challenge of ever-better packaging!

Using a high vacuum of considerably less than 1 micron absolute pressure, metal is vaporized and deposited as a thin film on a specimen which will later be studied under the electron microscope. This "shadow casting" technique is one of the experimental methods used at Canco's Barrington, Ill., laboratory in the long-range study of materials and methods for entirely new types of cans.


For more than fifty years, American Can Company's program of container research has been noteworthy. It was the very first venture of its kind and one of the earliest research programs sponsored by any industry.

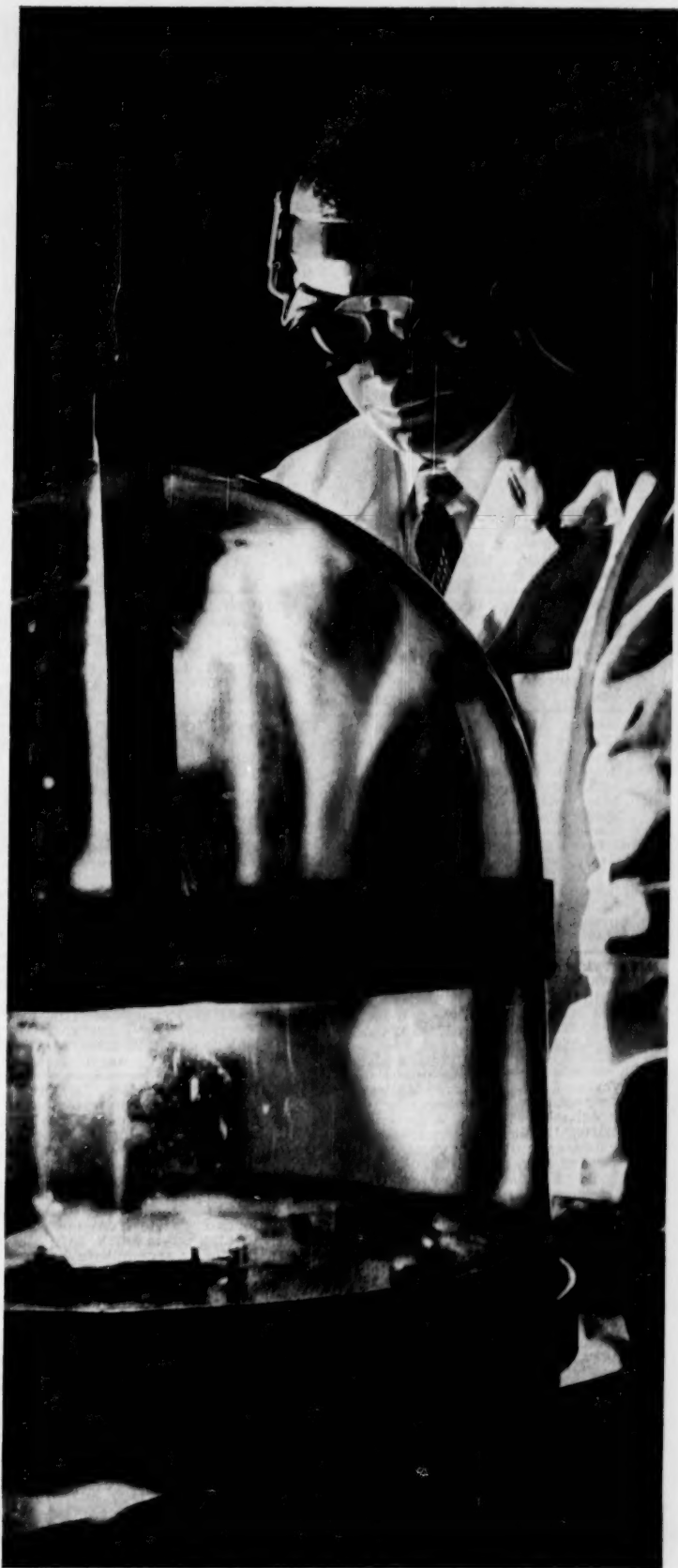
Through the years, Canco scientists and engineers have contributed dozens of important "firsts" to canning and packaging technology. The results of their many achievements have helped millions to live better, more conveniently, for less money.

Today, in Canco's well equipped laboratories in Barrington and Maywood, Illinois, there are more than 250 scientists and technologists at work—chemical engineers, metallurgists, chemists, food technologists, agronomists and many others.

For trained men, this broad program of inquiry is a constant challenge. For the graduate scientist or engineer, it is a path of invaluable experience—often leading to a long, happy career with Canco!

American Can Company

 New York • Chicago • San Francisco



New Packaging & Handling Equipment 1957 INVENTORY

Literature Available

Containers—
Conveyors, Belt

Containers....."New and Better Containers" provides a picture-book tour of Continental's building for metal container research and development in the packaging industry. Request your copy.
356A Continental Can Co.

Containers, Bulk.....How you can save by shipping chemicals in corrugated bulk containers is discussed in a 4-page brochure. Included are case histories of successful chemical industry uses.
356B Gaylord Container Corp.

Containers, Chemical.....Hackney chemical containers save shipping, handling and storage costs. Stainless steel protects dangerous or corrosive chemical products. Hackney Drum & Barrel Catalog.
356C Pressed Steel Tank Co.

Containers, Glass, Plastic.....Comprehensive listing of glass and plastic containers and closures is contained in 103 p. catalog. Listings made according to size with drawings, specifications.
356D W. Braun Co.

Containers, Materials Handling.....16-page catalog "CDF Materials Handling Containers" describes in detail a complete line of vulcanized fibre trucks, trays, boxes, baskets, roving cans and barrels.
356E Continental-Diamond Fibre.

Containers, Shipping.....24 p. booklet describes one-ton shipping containers for handling liquefied and compressed gases, and chemicals such as liquid chlorine, anhydrous ammonia, sulfur dioxide.
356F Columbian Boiler Co.

Conveying Equipment.....Bulletins available on belt conveyors, feeders, ship loading boom conveyors, stacking conveyors, storage and reclaiming systems, vibrating conveyors, conveyor-elevators.
356G Stephens-Adamson Mfg. Co.

Conveying Equipment.....Bulletins on conveyor belt cleaners, headshaft holdbacks, grizzlies & screens, centrifugal pillers, bin and tunnel gates, car pullers & spotters, holsts, bucket elevators.
356H Stephens-Adamson Mfg. Co.

Conveying Systems.....Conveying of dry bulk materials can be accomplished automatically by air, with Fuller systems. Designed for minimum maintenance, completely enclosed. Bulletin G-2.
356I Fuller Co.

Conveying Systems, Pneumatic.....Complete line of pneumatic transport systems provides varied installations. Air activated containers, air conveyors, automatically controlled systems. Literature.
356J Kennedy-Van Saun Co.

Conveyor Belts, Wire.....Cambridge woven wire conveyor belts are made in any size, mesh or weave from any metal or alloy. Can be used under a wide range of conditions. Reference Manual.
356K Cambridge Wire Cloth Co.

Conveyor, Belt.....Bulletin on Tru-Trak steel belt conveyor explains and illustrates how V-ropes bonded to the underside of steel conveyor belts travel over grooved sheaves to maintain belt alignment.
356L Sandvik Steel.

Conveyor, Chain.....Flat-top conveyor combines smooth nylon carrying surface with precision roller chain. Folder 2492 provides details and illustrates use of conveyor with cans, bottles, etc.
356M Link-Belt Co.

Conveyor, Gravity.....Application ideas and features of Rapistan Flow Track gravity conveyor are presented in Bulletin FT-57. Complete specifications are included in literature.
356N Rapids-Standard Co.

Conveyor, Roller.....Bulletin RR-57 discloses details on an aluminum 1.75 in. roller conveyor. Non-corrosive, non-sparking nature of conveyor is good in high humidity and explosive conditions.
356O Rapids-Standard Co.

Conveyor, Screw.....Bulletin 957 tells how Flo-tube screw conveyors handle bulk materials from fine-mesh size up to 2-in. dia. Units move or feed wide range of materials at controlled rates.
356P Canton Stoker Corp.

Conveyor, Screw.....Standard, stainless-steel screw conveyors available from stock are described in leaflet which also lists the sizes which are carried in stock for immediate delivery.
356Q M-H Standard Corp.

Conveyor Systems.....Company's Catalog 157 covers in complete detail the design, features and applications of the Infloor Towveyor and overhead Tow-Conveyor. Mechanical details and installation advice.
356R Jervis B. Webb Co.

Conveyors.....Ajax Lo-Veyors are compact, self-contained units that can be suspended from ceilings, along walls, under or at floor levels, giving maximum flow capacity in limited space. Bul. 39.
356S Ajax Flexible Coupling Co.

Conveyors.....Raising and lowering loaded pallets from one floor level to another is quick, safe and automatically accomplished with an Alvey conveyor. For description of system, see Booklet 130.
356T Alvey Conveyor Mfg. Co.

Conveyor.....Bulletin 801 details Farquhar line of "Roll-Free" Wheel and Roller Type Gravity Conveyors. Covers construction features, specifications, accessories & installation photographs.
356U Oliver Corp.

Conveyors.....Brochure P-30 describes Prab's bucket elevators, screw conveyors, and vibrator combination. Units are designed to handle abrasive materials such as sand, chemicals, grains, etc.
356V Prab Conveyors.

Conveyors.....Catalog covers four patented products: Magnavator, Tube-Veyor, Chip-A-Way and Welded Tube. Also covers custom built conveyor equipment. Details are available to you in Catalog 500.
356W Prab Conveyors.

Conveyors.....Several engineering advances in flow equipment are featured in a new materials handling equipment catalog. Look for hydraulically controlled portable power belt conveyor and others.
356X Speedway Conveyors.

Conveyors.....Company offers details on its line of conveyors—belt, roller, slat, chain, pushbar or sectional—power or gravity—permanent or portable. Spiral chutes, pneumatic tubes. Bul. 0-8.
356Y Standard Conveyor Co.

Conveyors.....Standard designs and builds permanent and portable systems and units, using roller, belt, slat, chain, pushbar or sectional conveyors—power or gravity. Spiral chutes, etc. Bulletin 0-6.
356Z Standard Conveyor Co.

Conveyors.....Standard conveyor systems keep heavy, bulky commodities moving with minimum manpower and time loss. Systems can be job-tailored to any materials handling problem. Bulletin 309.
356AA Standard Conveyor Co.

Conveyors....."Power and Free," 16 p. brochure describes and illustrates ten major materials handling functions which invite use of company's conveyor systems. Includes installation pictures and diagrams.
356BB Jervis B. Webb Co.

Conveyors, Airstream.....Plastics, foods, chemicals and pharmaceuticals whose purity must be protected can be conveyed in bulk swiftly and safely with Dracco airstream conveyors. Bul. 529.
356CC Dracco Corp.

Conveyors, Bag.....Bulletin 0456 gives details on adjustable-length, flat-belt conveyor designed to convey packages. Covers installation and operation. standard components and various drives.
356DD Richardson Scale Co.

Conveyors, Belt.....Bulletin describes the Rapistan Stevedore, Jr., a portable inclined belt conveyor. Describes application to loading, unloading, movement of materials, etc. Form 300-56.
356EE Rapids-Standard Co.

Conveyors, Belt.....Bulletin describes the Aluminum Stevedore, Jr., a portable inclined belt conveyor. Illustrates & describes application to loading, unloading, movement of materials. Form 350-56.
356FF Rapids-Standard Co.

FOR MORE INFORMATION on any item in this section, write its code number on one of the Reader Service postcards (inside back cover) and mail. It's fast and easy.



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VISIT WITH US AT THE CHEMICAL SHOW

Booth **446**, Second Floor
NEW COLISEUM, NEW YORK

Once again, it will be a pleasure to welcome you in our booth at the Chemical Show . . . to talk over your problems on conveying, feeding, and cooling of dry pulverized and granular materials, and your requirements on air compressors and vacuum pumps.

Sales engineers will be in attendance to discuss thoroughly any problems you may have, on which we might be of some assistance to you.

If you are presently handling dry pulverized or granular materials into, through, or out of, your plant, stop in and talk it over with one of our representatives . . . get the full story on harnessing air to move materials. It may well pay you plenty in terms of higher, sustained production at reduced cost.

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EQUIPMENT DESIGNED AND BUILT by **FULLER**

Fuller-Kinyon, Fuller-Fluxo, Airveyor® and F-H Airslide® conveying systems • Fuller Airmerge Blending System • Fuller Rotary Compressors and Vacuum Pumps • Sutorbilt Rotary Positive-Pressure Blowers . . . Gas Pumps . . . Vacuum Pumps • Fuller Preheater—Humboldt Suspension Type • Fuller Inclined-Grate Cooler • Fuller Horizontal-Grate Cooler • Fuller Dry Pulverized-Material Cooler • Fuller Rotary Feeders and Rotary Valves • Material-Level Indicators • Lehigh Induced-Draft Fans • Motion Safety Switch • Aeration Units • Slurry Valves



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New Packaging & Handling Equipment 1957 INVENTORY

Literature Available

Conveyors, Belt—
Drums, Magnetic

Conveyors, Belt.....Bulletin features operational features, advantages and new ease of adjustment given Speedlift by its exclusive feature: hydraulic adjusting control unit. Bulletin SL 556.
358A Speedways Conveyors.

Conveyors, Chain.....Bulletin describes low cost overhead conveyor. Lists features of the lightweight and flexible conveyor, and illustrates several of its uses. Request your free copy now.
358B Chainveyor Corp.

Conveyors, Dragline.....24 p. book covers design, application, installation of overhead and in-the-floor types of dragline conveyors, known as Trukveyors. Company offers Book 2497.
358C Link-Belt Co.

Conveyors, Gravity and Power.....Bulletin 64 gives information on twelve standardized conveyor units. Equipment speeds handling of unit materials in warehouses, and various plant operations.
358D Standard Conveyor Co.

Conveyors, Lift.....Bulletin describes how the Rapistan Vertical Lift Conveyor can replace costly elevators, save space & the time & cost of an elevator operator. Request Form 1400-66.
358E Rapids-Standard Co.

Conveyors, Lightweight.....8 p. folder illustrates and describes ten typical industrial uses for the lightweight overhead conveyor. Specifications are included. Company gives Bulletin 954.
358F Jervis B. Webb Co.

Conveyors, Multi-Tier.....If you heat, cool, dry, freeze, bake, store, pasteurize or cure, you will be interested in Continuous Multi-Tier Processing for industry. For details, send for Bulletin 55-12.
358G J. W. Greer Co.

Conveyors, Oscillating.....Complete guide to correct selection and application of stock size Coilmount oscillating conveyors is contained in book 2644. Dimensions and specs. for stock components.
358H Link-Belt Co.

Conveyors, Package.....Folder Form IND-1 shows use of gravity and power belt conveyors in various industrial operations. Describes basic packaged conveyor units, portable lines and controlled flow systems.
358I Rapids-Standard Co.

Conveyors, Pneumatic.....Why you should install a Hoffco-veyor system to convey dry, free-flowing solids pneumatically is detailed in brochure PN-500 which covers basic types and applications.
358J U. S. Hoffman Machinery.

Conveyors, Pneumatic.....Bulletin describes Alro-Flow pneumatic conveyor, a package unit designed especially for small and medium size bulk material handling requirements. Bulletin 154-B.
416-7a *Sprout-Waldron Co.

Conveyors, Pneumatic.....Pneu-Vac is a negative pressure or draw-through conveying system with fan located on the opposite side of the collector from the material conveying line. Bulletin 18-E.
416-7n *Sprout-Waldron Co.

Conveyors, Power.....Catalog includes size and dimension data plus installation photos of 19 power conveyors in operation. Portable, stationary, horizontal and inclined types shown. Bulletin 302.
358M Harry J. Ferguson Co.

Conveyors, Screw.....Link-Belt's sound engineering and quality manufacture assure you of top performance. A 92-page Screw Conveyor Book contains complete ordering data. Data Book No. 2289.
358N Link-Belt Co.

Conveyors, Screw.....24 p. booklet contains descriptions, specifications, drawings and photographs of several types of screw conveyors, along with their fittings, hangers, and box ends. Bul. 83.
416-7d *Sprout-Waldron Co.

Conveyors, Screw—Components.....Related ball bearing equipment (trough ends, hangers, etc.) that has been added to company's screw conveyor component line is described in 6 p. Folder 2489.
358P Link-Belt Co.

Conveyors, Sliding Board Belt.....Slider-Board belt conveyor will handle large quantities of materials such as dry cereals, rolled oats, soap chips. Can be used as an inspection table. Bul. 175.
416-7e *Sprout-Waldron Co.

Conveyors, Spiral.....Jeffrey spiral conveyor systems, automatically controlled, offer economical means of handling dry, loose bulk materials. Compact, convenient, open or dust-tight. Cat. 851.
358R Jeffrey Mfg. Co.

Conveyors, Vertical.....4 p. bulletin describes Alvey Automatic Vertical Conveyor for loaded pallets. Describes application of the automatic Vertical Recirculator Conveyor. Bulletin ALV-130.
358S Alvey Conveyor Mfg. Co.

Conveyors, Wheel.....Catalog tells how Live Rail can be used to move, store or unload large and small packages, parts in process—most objects with smooth, flat bottoms. Ask for Cat. LR-56.
358T Alvey-Ferguson Co.

Cranes, Jib.....All cranes in the line have full 360° rotation and are self-supported on either base-mounted or pillar-mounted columns. Informative folder gives illustrations and data.
358U R. G. LeTourneau, Inc.

Crane, Traveling Overhead.....Series of pages with marginal tabs and split horizontally at the center enables anyone to select the exact overhead crane to meet particular job requirements.
358V Manning, Maxwell & Moore.

Cylinder, Compressed Gas.....Complete information on a 132 cu. in. disposable cylinder for handling freon and other aerosols and compressed gases is presented in product Bulletin DC-257.
358W Tube Manifold Corp.

Cylinders, Gas.....Safety & long life are considerations in the design of Harrisburg high pressure gas cylinders. Yet they are as light as sound engineering permits. Request literature.
358X Harrisburg Steel Co.

Cylinders, Seamless.....Versatile, smooth, lightweight seamless cylinders are used to ship and store many compressed gases at greater savings. Safe, dependable, economical. Specification sheets.
358Y Pressed Steel Tank Co.

Delivery Systems, Bulk.....Company offers information on Superior Bulk Delivery Systems, giving greater payloads, discharge rate, safety and profit. Includes specifications and diagrams.
358Z Superior Separator Co.

Dispensers, Drum.....Company's transfer pump hose for dispensing flammable liquids from drums has a wire insert forming static-free ground between pump and container. Also drum faucet. File 69.
476-7f *Protectoseal Co.

Dispensers, Liquid.....Spring-actuated knife-edge closure operated by carrying handle cuts stream of viscous liquid instantly, cleanly, upon release. No hardening by solvent evaporation. File 66.
476-7e *Protectoseal Co.

Dockboards.....Company offers 4 p. catalog covering their line of HI-LO Automatic Dockboards. Explains & diagrams the HI-LO features for both recess & packaged models. Catalog D-160.
358CC Kelly Co.

Dockboards, Automatic.....Manufacturers of HI-LO Automatic Dockboards have redesigned and simplified their units for greater ease of installation, smoothness of operation and safety. Details.
358DD Kelly Co.

Dolly.....Catalog sheet tells how the Multiton Jr. provides an inexpensive way to handle loads ranging from 1,000 to 6,000 lb. close to ground level. Dolly moves on three rollers. Send for a copy.
358EE Stokvis Edera & Co.

Drag Scrapers.....Ask for Catalog A, Drag Scrapers—24 pages of job photos and specifications. Request Field Reports showing your material being handled by low cost Sauerman Method.
358FF Sauerman Bros.

Drag Scrapers.....No personnel need enter the storage area; a single operator can recover material from all sections by remote control. Operating costs as low as 2.1 cents per ton for labor, etc.
358GG Sauerman Bros.

Drums, Magnetic.....Eriez Permanent Magnetic Drum can be used for automatically extracting tramp iron from materials conveyed in spouts, chutes, spiral conveyors, etc. Request Bulletin B-601.
358HH Eriez Mfg. Co.

Drums, Magnetic.....Permanent Alnico magnetic drums give efficient, low-cost separation of tramp iron from material in spots where other magnetic separators cannot be used. Bulletin C-1100-A.
437f *Dings Magnetic Separator.

* From advertisement, this issue



LO-VEYORS

VIBRATING TYPE

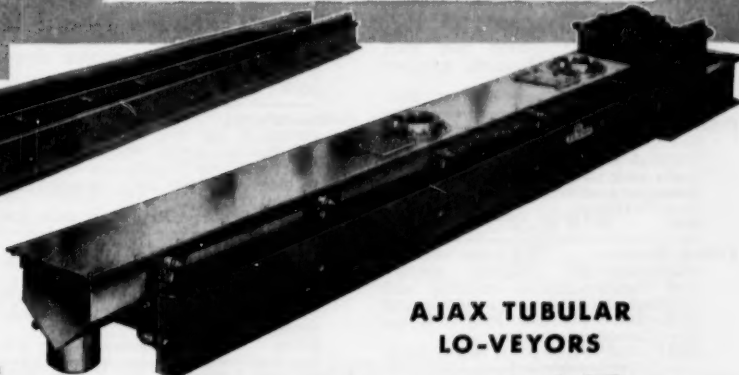
Combine Sanitation, Large Capacity, Adaptability, Low Power and Maintenance Costs

**FOR MULTI-PURPOSE
HANDLING AND PROCESSING
OF BULK MATERIALS**



AJAX OPEN AND CLOSED PAN LO-VEYORS

Ajax Pan Type Conveyors are made in lengths from 3 ft. up. They are available with open pan, or booted covers to safeguard critical processes or formulas against contamination. Conveyor pans can be arranged for simultaneous screening, washing, drying, cooling and other operations.



AJAX TUBULAR LO-VEYORS

Tubular construction provides sealed, gas tight operation in closed systems under vacuum or pressure. Diaphragm seals can be used where tube passes through walls of processing plants.

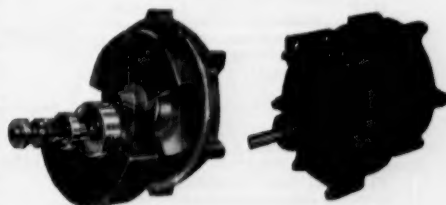
AJAX SCREENS



Ajax Screens meet the ever closer limits of standardization in graded materials. They provide accurate separation, high capacities, minimum floor space, long cloth life and low power costs.

AJAX SHALER SHAKERS

The Ajax Shaler Shaker is in automatic balance. Lo-Veyors can be set on floor or hung from ceiling or wall without heavy anchorage.



AJAX PACKERS



Ajax Packers are used for compacting bulk materials into bags, cartons, boxes and drums. Self-contained and easily integrated in production lines.

AJAX VIBRATING LO-VEYORS ARE SELF-CONTAINED

Ajax Vibrating Lo-Veyors are self-contained and require little headroom for drive and pan. They are easily and quickly installed on or below floor levels, or suspended from walls or ceilings.

Stringy, elongated, abrasive, fine or coarse mesh materials never hang up while being conveyed in Ajax Vibrating Conveyors. The positive upward and forward tossing action keeps materials flowing freely and evenly.

Made in a wide range of sizes and lengths, they are being used from beginning to end in progressive chemical processing. Write for Bulletin 39.

AJAX FLEXIBLE COUPLING CO. INC.

Representatives in Principal Cities

WESTFIELD, N. Y.

New Packaging & Handling Equipment 1957 INVENTORY

Literature Available

Drums, Stainless Steel—
Materials Handling

Drums, Stainless Steel......Hackney removable head stainless steel drums protect shipment, open easily, close tightly. Available in several sizes. Request Hackney Drum and Barrel Catalog.
360A Pressed Steel Tank Co.

Fillers & Packages......Automatically control delivery and packaging of plant, process or end-product liquids faster at lowest cost with Bowser systems. Request product catalog.
360B Bowser, Inc.

Fillers, Piston......Librascope piston fillers will help you cut filling costs. Vertical action plunger-type valves that maintain positive control of leakage, assure longer valve life. Specifications.
360C W. F. & John Barnes Co.

Fillers, Vacuum......Complete bottling machinery—air cleaning, gravity and vacuum filling, capping and labeling. Bulletin gives design and performance specifications for Rotovac filler. Bulletin 130.
360D Pneumatic Scale Corp.

Filling Machines...... Available in 1 to 4-tube models, the Fluopacker packs powdery and granular materials at high speeds, with accurate weights, into smaller, cleaner bags. Fluopacker Booklet.
360E St. Regis Paper Co.

Float Boxes, Packless......For handling volatile or flammable fluids. Sealed flexible joint, minimum maintenance, higher sensitivity, less friction. Operates control valves from 1/2" to 8". Bulletin.
360F Davis Regulator Co.

Handling Equipment, Chlorine...... Literature illustrates & describes chlorine handling equipment: liquid chlorine evaporators, valves & fittings for chlorine liquid & gas supply lines. Catalog 50.100.
360G Wallace & Tiernan.

Handling, Flammable Liquid...... Practical, non-technical, illustrated explanation of the nature and safe plant use of flammable liquids is available. Covers all phases of handling & application.
360H Protectoseal Co.

Chemicals—1957

... and Equipment are reviewed in this issue which inventories the CE issues of August 1956-August 1957. It's a handy rundown of major developments during the last thirteen months. And additional information is free, fast and easy if you use the Reader Service postcards inside the back cover.

Handling & Unloading, Hydrogen Peroxide......Chart includes safety measures for unloading tank cars of hydrogen peroxide, and in handling, emptying and storing aluminum drums of hydrogen peroxide.
360I Solvay Process Div.

Holdbacks......Mounts on headshafts of belt conveyors and bucket elevators to prevent reversal under load in case of power failure. Safeguards personnel and equipment. Request a copy of Bulletin 155.
360J Stephens-Adamson Mfg. Co.

Hoppers, Self-Dumping......Hoppers introduced for handling of wet or dry, cold or hot bulk materials by industrial trucks are illustrated and described in a new catalog sheet. Request a copy.
360K Apex Weld. & Fabricat. Corp.

Hortonspheres......Hortonspheres are designed for the storage of anhydrous ammonia, butadiene, and other volatile liquids, are available in sizes to 30,000 bb's. Request information.
360L Chicago Bridge & Iron Co.

Idlers......4 p. three-color bulletin describes company's deep trough belt conveyor idlers. Designed for handling all sorts of lightweight bulk materials including cereals & other grains. Bulletin 76.
360M Barber-Greene Co.

Idlers, Belt Conveyor......8-page bulletin describes complete line of belt conveyor idlers including flat, troughing, self-aligning rubber disk and return designs. Lists std. sizes, dimensions, weights, etc.
360N C O. Bartlett & Snow Co.

Idlers, Conveyor, Belt......Contains design and application data, descriptions, dimensional drawings, specification tables and suggested applications for Limberoller idlers. Bulletin LD-105.
360O Joy Mfg. Co.

Idlers, Conveyors......Idlers' quality features assure dependable, full-capacity conveying with spun end, one piece rollers; permanently sealed; pre-lubricated; quick-change rollers. Bulletin 355.
360P Stephens-Adamson Mfg. Co.

Lifts......Mobile access lifts assure safe working conditions up to 40 feet above floor level. Designed for countless operations in production, installation and maintenance. Request information.
360Q Ballymore Co.

Loaders......S-A Standard and "Hi-Type" Swiveloaders in Catalog 854, S-A Box Car Loader in Catalog 948, full line of materials handling products ready for immediate shipment in Catalog 60.
360R Stephens-Adamson Mfg. Co.

Loaders......Wheaton Loader for organic chemicals and petrochemicals features spring balancing for easy operation and simple, fast packing seal replacement. Full details upon request.
360S Wheaton Brass Wks.

Loaders, Front End......16-page catalog, Form No. 1033-5-57 gives you details on five Tracto-Loader front-end loaders currently in production. Features cutaway and phantom views of vital parts.
360T Tractomotive Corp.

Loaders, Palletless......Bulletin covers push-pull loader with integral sideshift which is used for palletless loading. Specifications on fork-truck attachment are accompanied by procedure for use.
360U Yale & Towne Mfg. Co.

Loaders, Tractor......Compact Tractomotive TL-6 Tractor-Loader quickly unloads boxcars, travels through narrow aisles and doorways, makes hairpin turns around columns and posts. Request product bulletin.
360V Tractomotive Corp.

Loading Arms......Use Chiksan Loading Arms for handling tough corrosives. The answer where the accent is on service, safety and speed. Maintain smooth production schedules. Chiksan Catalog.
360W Chiksan Co.

Magnets......"Magnetic Ideas From Eriez" contains case histories explaining how various firms use permanent, non-electric magnets to prevent iron contamination in their products. Brochure B-213.
360X Eriez Mfg. Co.

Magnets, Permanent......Introduction to catalog gives analysis of permanent magnetic properties and engineered applications. Remainder of book features drawings and charts. Catalog 156.
360Y Magni-Power Co.

Magnets, Perma-Plate......Dings dynamic way to remove tramp iron from rapidly moving material. Perma-Plate Magnets for magnetic separation in chutes, spouts, ducts. Catalog 1205-D.
360Z Dings Magnetic Separator Co.

Magnets, Rectangular......"In-Line" or across-the-belt rectangular magnets pull tramp iron out of deepest burdens on high-speed belts. Automatic self-cleaning discharge. Bulletin 1315-A.
437d "Dings Magnetic Separator.

Magnets, Separation......Announces line of suspended separation magnets for use with conveyor systems. Powerful pulling force digs out imbedded tramp iron in the flow of material. Bulletin 25-D.
360BB Stearns Magnetic.

Material Handling Equipment......52 p. book includes specifications and illustrations of entire line of current model fork lift trucks, platform lift trucks, load carrying trucks tractors. Cat. 400.
360CC Mercury Mfg. Co.

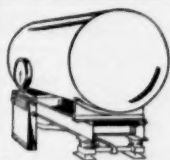
Materials Handling......Engineering & Application booklet covers components of overhead materials systems. Describes track design & advantages of support-it flexibility. Booklet No. 2008-M.
360DD Cleveland Crane & Engineer.

Materials, Handling......Company offers a directory of their products, engineered equipment, & manufacturing sales, & service facilities. Includes research facilities, technical literature, etc. Book 2653.
360EE Link-Belt Co.

Materials Handling......Booklet describes lightweight vulcanized fibre containers to increase efficiency, reduce costs and simplify methods of materials handling. "Materials in Motion" by National.
360FF National Vulcanized Fibre.

HOWE

TANK
SCALES



PORTABLE
SCALES



WEIGHT-
OGRAPHS



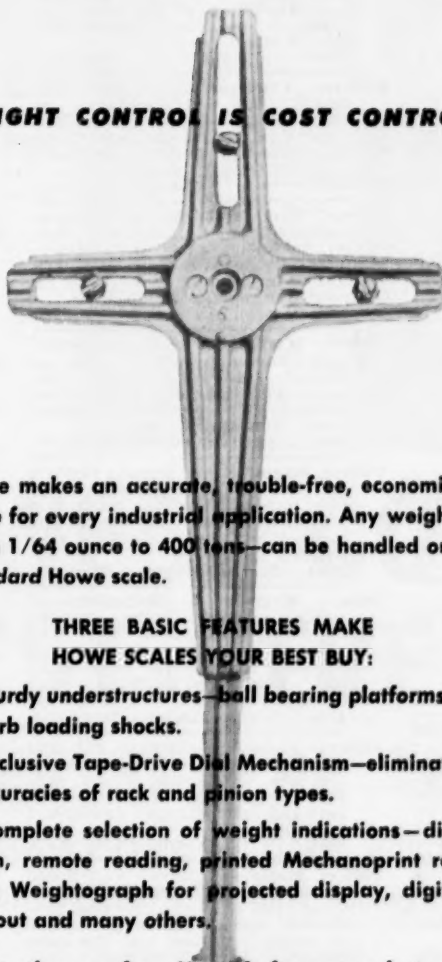
DIAL
SCALES



HOPPER
SCALES



WEIGHT CONTROL IS COST CONTROL



Howe makes an accurate, trouble-free, economical scale for every industrial application. Any weight—from 1/64 ounce to 400 tons—can be handled on a standard Howe scale.

THREE BASIC FEATURES MAKE HOWE SCALES YOUR BEST BUY:

1. Sturdy understructures—ball bearing platforms to absorb loading shocks.
2. Exclusive Tape-Drive Dial Mechanism—eliminates inaccuracies of rack and pinion types.
3. Complete selection of weight indications—dial, beam, remote reading, printed Mechanoprint records, Weightograph for projected display, digital readout and many others.

Talk to the man from Howe before you select any scale for any weighing application.

SCALE TYPES

- AIRPLANE SCALES
- AXLE LOAD SCALES
- BATCHMASTERS
(automatic batching systems)
- COUNTING SCALES
 - All-Ratio Bench
 - All-Ratio Portable
 - Fan Type
 - Narrow Aisle
(Square Platform)
 - Single or Double Ratio Counting Attachments
- DIAL SCALES
 - Barrel
 - Bench
 - Crane Dial
 - Floor
 - Overhead Track
 - Portable Platform
 - Spring Dial
 - Suspended Dial
 - Suspended Platform
 - Suspension Hopper
 - Tank
 - Weigh-can
- EVEN BALANCE SCALES
- FLOOR SCALE BEAMS
- FLOOR SCALES
- GRAIN DUMP SCALES
- HOPPER SCALES
- INDUSTRIAL
 - BUILT-IN SCALES
 - INDUSTRIAL SCALE BEAMS
- LIGHT TRUCK
& WAGON SCALES
- LIVESTOCK SCALES
- MECHANOPRINT
WEIGHT RECORDERS
- MOTOR TRUCK SCALES
(2 & 4 section pipe lever types)
- MOTOR TRUCK SCALES
(2 & 4 section straight lever types)
- POSTAGE SCALES
- PRE-DETERMINED
WEIGHING SCALES
- RAILROAD TRACK
SCALES
(2 & 4 section straight lever types)
- RECORDING BEAMS
- SACKING SCALES
- TANK SCALES
- WEIGHTOGRAPHS

LOCAL SALES AND SERVICE OFFICES LISTED IN A-Z SECTION

THE HOWE **HOWE** SCALE CO.

2951 SCALE AVE. • RUTLAND • VERMONT

A SUBSIDIARY OF SAFETY INDUSTRIES, INC.

New Packaging & Handling Equipment 1957 INVENTORY

Literature Available

Materials Handling—
Scales, Bagging

Materials Handling.....Tote system is a complete, mechanical, automatic bulk materials handling system—metal bins plus filling and discharge equipment. Catalog has applications, users' list.
367 *Tote System.

Materials Handling, Bulk-Flow.....Equipment reduces handling costs on wide range of materials. Features ability to feed, convey, elevate in one compact, fully enclosed assembly. Book 2475.
362B Link Belt Co.

Materials-Handling Equipment.....Entire line of Lifetime materials handling equipment is illustrated and described in a foldout leaflet. Included are loading ramps, stackers and pallets.
362C Elizabeth Iron Works.

Materials Handling Equipment.....Ajax Lo-Veyors combine sanitation, large capacity, adaptability, low power and maintenance costs for multi-purpose handling of bulk materials. Bulletin 39.
359 *Ajax Flexible Coupling.

Materials Handling Equipment.....Illustrated bulletin pictures company's pneumatic unloading, handling and delivery systems for bulk materials in action at a large flour mill. Bulletin 149.
416-7c *Sprout-Waldron Co.

Materials Handling Systems.....Bring you more efficient method of bulk materials handling . . . in number of installations, in sanitation, in flexibility, in compactness, in savings. Literature.
362F Tote System.

Mixer-Unloader Units.....A-S-H Type B mixer-unloader removes ash or other dry material from storage bins, mixes it with water and discharges it into waiting trucks or rail cars. Request Data Sheet Uc.
362G Allen-Sherman-Hoff Co.

Outsert Applicators.....Automatic machine attaches sales aids such as recipes & coupons to the outside of your containers. Outsert applicator works on glass, metal, plastic or paper. Bul. 933.
362H Pfaunder Co.

Packaging....."1957 Guide to Improved Packaging" shows how Bakelite polyethylene, styrene, vinyl and phenolic plastics are creating ways of getting products to customers with economy.
362I Bakelite Co.

Packaging.....How to cut costs, simplify packing and improve packaging of heavy products is discussed in booklet #12. Examples illustrate packing of motors, pumps, etc. Request a copy.
362J Hinde & Dauch.

Packaging Materials....."Packaging and Carload Guide" tells how to package and carload for maximum product protection at minimum cost. For complete information, request Catalog No. 17.
362K Signode Steel Strapping Co.

Packaging, Pressure.....Complete information about the one-use pressurized can will be found in the 3rd edition of the Pressure Packaging Catalog. Lists suppliers of valves and loading equipment.
362L Crown Cork & Seal Co.

Packers, Bag.....Company offers a brochure describing its Airflow Valve Bag Packers. Also included is a description of the Black Diamond Screw Type Packer & Settler. Request your copy.
362M Black Products Corp.

Pulleys, Conveyor.....Construction details, sizes and dimensions on Taper-Lock steel conveyor pulleys. Taper-Lock bushings are interchangeable in Dodge Taper-Lock conveyor pulleys. Bulletin D56.
362N Dodge Mfg. Corp.

Pulleys, Electromagnetic.....Stearns manufactures electromagnetic pulleys in sizes to meet your requirements for positive tramp iron protection on conveyor lines. Send for your copy of Bulletin 303-DB.
360U Stearns Magnetic Products.

Pulleys, Magnetic.....Dings permanent magnetic pulleys, made of highest grade Alnico, are designed with extremely high surface strength for protection against tramp iron. Bul. C-1007A.
360F Dings Magnetic Separator Co.

Pulleys, Magnetic.....Stearns builds a complete line of engineered magnetic pulleys for positive tramp iron protection on conveyor lines in any processing industry. Request your Bulletin 350-CB.
360Q Stearns Magnetic Products.

Pulleys, Magnetic.....Permanent or electric magnetic pulleys provide completely automatic iron removal and discharge for material traveling on conveyor belts. Send for Catalogs C-1001-A and C-1007-A.
437e *Dings Magnetic Separator.

Pulleys, Motor.....Gerbing #51 and #57 Var-A-Cone motor pulleys, for use with "B" section V-belt, provide low cost variable speed. Compact and light. Request details and bulletin.
360S Gerbing Mfg. Corp.

Pulleys, Motor.....Reeves Vari-Speed motor pulleys get greater productivity; run at most economical production speed; handle production or process variables with the same machine. Request bulletin.
360T Reeves Pulley Co.

Pulleys, Motor.....Bulletin describes variable speed motor pulleys (¼ through ½ hp) available with adjustable & tilting bases, companion sheaves, motor bases & V-belts. Bulletin 1630-B1P.
360U Worthington Corp.

Pulleys, Welded Conveyor.....In Bulletin 5781 are described welded steel conveyor pulleys for belt conveyor and bucket elevator systems. Included are drum types and self-cleaning wing types.
360V Chain Belt Co.

Rack, Pallet.....1 p. flyer pictures and describes adjustable rack for pallet, skid and bulk storage. Rack is designed for easy adjustability of shelf height to accommodate changing space requirements.
360W M-H Standard Corp.

Rakes, Trash Rack.....Trash rack rakes reduce head and power losses at intakes of hydro-electric plants, etc., by removing debris which gathers on racks and obstructs water supply. Bul. 158.
360X S. Morgan Smith Co.

Roll Handling.....Roll handling methods and equipment—ranging from heavy duty electric fork trucks equipped with clamps and attachments to 2-wheel hand trucks—are described. Application Analysis 151.
360Y Lewis-Shepard Products.

Scales.....Catalog offers wide range of scales for use in chemical industry from 2000 mg up to 100 lb. Form 3333 details 34 different models with illustrations and specifications.
360Z Exact Weight Scale Co.

Scales.....Bulletins available about Floaxial scales. "Floaxial" is a name created to describe several engineering principles applied to weighing machinery; covers several improvements.
360AA Fairbanks-Morse & Co.

Scales.....Howe Scale Catalog No. 11 is a handy reference featuring the popular scales from the complete line of standard Howe scales. Includes specifications and spot illustrations.
360BB Howe Scale Co.

Scales.....Toledo Weight Fact Kit will help you determine how well your scales measure up as a weighing system and help you detect weighing inefficiencies that drain profits. Send for it now.
360CC Toledo Scale Co.

Scales.....Scale Check Chart will show you quickly and accurately how well your scales are serving you, and provide the information you need for effective cost control. Available on request.
360DD Toledo Scale Co.

Scales, Automatic Bagging.....Fully describes the Richardson Model E-50 automatic bagging scale. Includes details of its features, tested design, operation, capacity, etc. Bulletin 3749A.
360EE Richardson Scale Co.

Scales, Bagging.....Model 700 bagging scale is hand operated, can quickly be attached to a feed mixer or hopper. Will bag 6 to 8 bags per minute of any free flowing material. Details.
360FF Burrows Equipment Co.

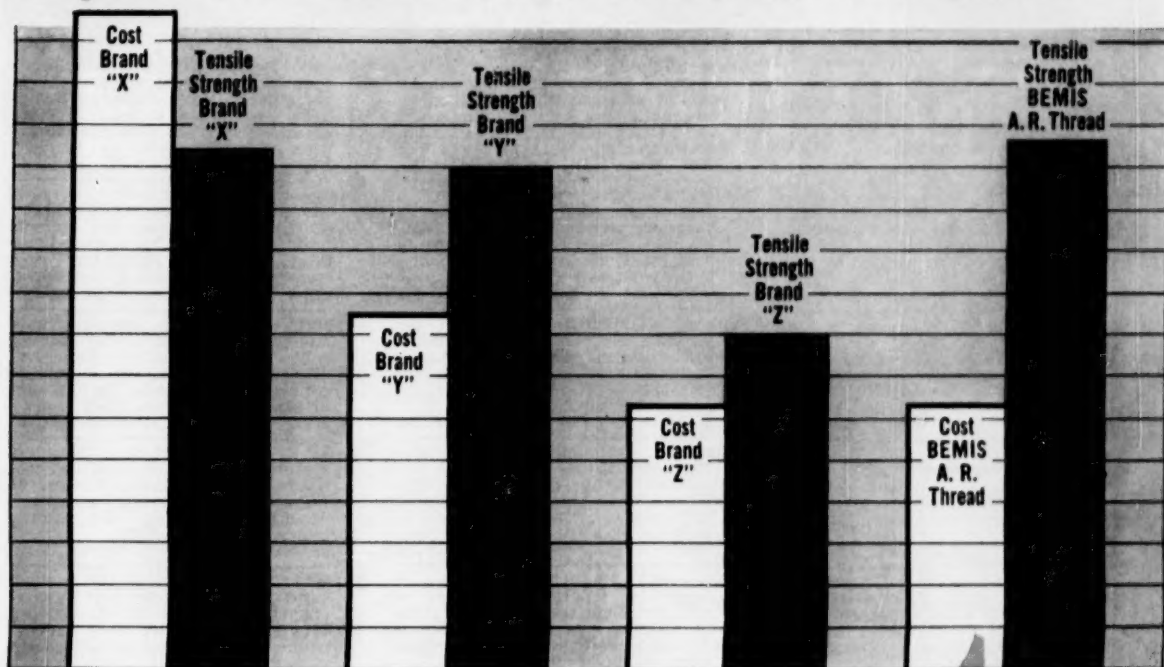
Scales, Bagging.....Details of automatic bagging scales given in bulletin 6357. Equipment handles rains, small pellets, etc. Three styles—floor portable, overhead stationary, overhead portable.
360GG Richardson Scale Co.

Scales, Bagging.....Bulletin 0256 for multipurpose, open-type bagging scale discusses construction, operating rates and economy features. Gives details on standard and optional features of unit.
360HH Richardson Scale Co.

Scales, Bagging.....Illustrated bulletin describes design, operation and key features of an automatic bagging scale, "Weighblender," for the "do-it-yourself" pre-mix concrete industry. Bulletin 6041.
360II Richardson Scale Co.

* From advertisement, this issue

Report on BEMIS Acid-Resistant Thread:



LOWEST COST HIGHEST STRENGTH AFTER SEVERE TEST

When your multiwall bags are made and closed with BEMIS Acid-Resistant Thread you're giving your customers the best packaging — and it costs less

Here's proof of the exceptional value you get from Bemis Multiwalls, made and closed with Bemis Acid-Resistant Thread . . .

An interested, independent, outside organization* conducted rigorous tests with four well-known industrial threads—Bemis Acid-Resistant Thread, a widely used synthetic filament thread, and two other competing threads.

Two samples of each thread were buried in triple superphosphate (0-45-0). One set of samples was placed in a high-humidity room (100°, 90% R. H.) openly exposed. A second set was kept under more

normal conditions (73°, 50% R. H.).

After *twelve weeks* in the superphosphate, the samples were removed and tested for tensile strength. Bemis Acid-Resistant Thread and the synthetic filament (long considered to set the top standard) came out with almost exactly the same score . . . and both were substantially ahead of the other two threads.

But here's the payoff—Bemis Acid-Resistant Thread costs *less than half* as much as the only other thread that equalled it in performance. (Incidentally, it performs in sewing machines just like the famous Bemis Special Thread.)

Naturally, you're going to get the best economy, performance and value when you use Bemis Multiwalls, made and closed with Bemis Acid-Resistant Thread. And it is *alkali-resistant* as well.

Get the complete story from your Bemis man.

* One of the largest U. S. industrial companies.

Bemis



General Offices—408 Pine Street,
St. Louis 2, Missouri
Sales Offices in Principal Cities

New Packaging & Handling Equipment 1957 INVENTORY

Literature Available

Scales, Bagging—
Tanks, Storage

Scales, Bagging..... Company offers information on Multi-Purpose Bagging Scale, a power-driven belt-fed bagging scale sacking 25-, 50-, & 100-lb. bags at rates up to 15 bags a minute.

364A Richardson Scale Co.

Scales, Bagging..... Automatic bagging scale accurately proportions and bags 10 or more sacks of dry aggregate ingredients per minute. Useful in "do it yourself" dry-mix concrete market. Details.

364B Richardson Scale Co.

Scales, Bagging..... 2-color, 6 p. bulletin describes design, performance, & features of automatic bagging scale, designated as GA-38. Includes construction, components, etc. Bulletin 0156.

364C Richardson Scale Co.

Scales, Bagging..... Data sheet describes high-speed automatic fertilizer bagging scale, capable of bagging up to 24 sacks per minute. HA-39 fertilizer scale described in Data Sheet 5601.

364D Richardson Scale Co.

Scales, Bagging..... Company offers information on automatic belt-fed bagging scale which will weigh and bag up to fifteen 25- or 50-lbs., or twelve 100-lb. bags of grain and feed products a minute.

364E Richardson Scale Co.

Scales, Batching..... Model 700N batching scale employs a rotary type feeder for charging a gateless tipping type weigh bucket. Various sizes, from 100 lbs. per hour to 100 tons per hour. Bulletins.

364F Thayer Scale & Engrg. Corp.

Scales, Coal, Automatic..... Operation, components and auxiliary equipment for two models of high-speed automatic coal scales are described in a bulletin. For information, request Bulletin 0352A.

364G Richardson Scale Co.

Scales, Electronic..... Seven bulletins about Fairbanks-Morse electronic weighing and batching machinery are now off the press. Write company today for free copies of one or more.

364H Fairbanks & Morse Co.

Scales, Fertilizer..... Richardson fertilizer scale bags 20 sacks a minute. This scale is accurate to \pm four ounces on 80 lb. weighings. Company offers details on its HA-39 fertilizer scale upon request.

364I Richardson Scale Co.

Scales, Railroad track..... You get all modern "plus" features in Howe four-section straight lever railroad track scale—lever system, main bearings, checking, live and dead rails, etc. Form 685.

364J Howe Scale Co.

Scales, Shipping..... 4 p. bulletin describes automatic bulk grain shipping scale for the rapid weighing of all free-flowing grains. Describes operation, recording features, etc. Bulletin 4049A.

364K Richardson Scale Co.

Scales, Shipping, Grain..... Large volumes of free-flowing grain can be rapidly and accurately weighed by automatic bulk grain shipping scales. Class MM and Class MMM scales in Bulletin 1148A.

364L Richardson Scale Co.

Scales, Weighing and Bagging..... Leaflet shows line of imported weighing and bagging scales, feeders and closures. Vollenda line of equipment, offering high capacity is known world wide.

364M R & J Textile Corp.

Separators, Magnetic..... Model LS Sanitary Ferrotrap answers need in the chemical processing industries for protection against contamination of product or machinery damage. Bul. B-36-2.

364N Eriez Mfg. Co.

Separators, Magnetic..... FerroFilter Magnetic Separators provide the positive method of extracting microscopic iron particles from liquids and slurries. Company offers free Bulletin 56-E.

364O S. G. Frantz Co.

Separators, Magnetic..... Type K magnetic separator provides a magnetic field which attracts feebly magnetic particles. Purifies & concentrates bulk chemicals where other methods fail. Bul. 701B.

364P Stearns Magnetic.

Separators, Magnetic..... Type K high intensity magnetic separators are powerful and efficient enough to concentrate and purify materials previously considered unresponsive. Bulletin 701-BB.

364Q Stearns Magnetic Products.

Separators, Magnetic..... Permanent Alnico plate magnets assure removal of tramp iron from rapidly moving material. Easy installation in chutes, ducts, slides, over belts, etc. Cat. 1205-D.

437a *Dings Magnetic Separator.

Separators, Magnetic..... Permanent Alnico grate magnets afford protection in trouble spots which never before could be effectively guarded. Wing or drawer types. Ask for Bulletin 1213-A.

437b *Dings Magnetic Separator.

Shovel-Cranes..... Catalog gives descriptive information on the more than 20 models of Link-Belt Speeder shovel-cranes, all fully convertible to any standard front-end attachment. Book 2577.

364T Link-Belt Speeder Corp.

Shovels, Tractor..... "Modern 'Payload' Tractor Shovels In Industry" describes & illustrates a variety of industrial materials-handling applications for "Payload" tractor-shovels. Bulletin 304.

364U Frank G. Hough Co.

Side Shifters..... Bulletin describes the operation and specifications of a new side shifter attachment which is available for the complete line of stand-up & sit-down industrial trucks.

364V Lamson Mobilift Corp.

Sodium Handling, Metallic..... Illustrated, 44 p. brochure "Handling Metallic Sodium On A Plant Scale" contains data such as details of typical sodium-using processes; details of equipment installation, etc.

364W U. S. Industrial Chem. Co.

Storage Equipment, Chemical..... Lightweight, nonconductive, temperature-resistant tanks by Beetle have proven tops at beating costly chemical corrosion problems. Company offers literature.

364X Carl N. Beetle Plastics.

Storage Units, Mechanized..... Bulletin gives specification data for A. O. Smith Permaglas storage units connected with Sprout-Waldron pneumatic unloading and conveying equipment. Bulletin 164.

416-7J *Sprout-Waldron Co.

Supports, Cable..... Bulletin on cable trough & accessories for holding cables for all industries. Describes channel, extension & adjustable connectors for change in direction or elevation. Bulletin 256-F.

364Z P-W Industries

Tanks..... Cherry-Burrell stainless steel tanks store, mix, heat and cool a variety of products. Vertical or horizontal models, with many accessories, including thermostats, lamps. Bulletin G-506X.

364AA Cherry-Burrell Corp.

Tanks..... Open-top type for storage, surge, side or bottom mixing discussed in Bul. G-502. Closed-top type in horizontal and vertical shapes, sizes to 5000 gals. Bulletin G-506.

423e *Cherry-Burrell Corp.

Tanks, Bulk Material..... Ideal for buildings with limited headroom. Standard or special sizes. Low installation cost. Details on bulk material tanks and conveying equipment, Bulletins 529, 549.

364CC Day Co.

Tanks, Chemical Storage..... Company supplies tanks and vessels for chemical storage, made of carbon and stainless steel, aluminum and special alloys. 103 years of experience. Get "Tank Talks."

364DD R. D. Cole Mfg. Co.

Tanks, Floating Roof..... Various types of floating roof tanks for storing all types of volatile or corrosive products are detailed in a 24-page illustrated catalog 57 FR. Different types are highlighted.

364EE Hammond Iron Works.

Tanks, Floating Roof..... Company offers complete information on floating roof oil and gasoline storage tanks with patented 2-point suspension seal hanger. Also Plant Survey Report No. 4.

364FF Nooter Corp.

Tanks, Oil Storage..... In the newly revised bulletin "Oil Storage Tanks" you'll find descriptions of standard sizes, types of roofs, welding, testing, maintenance and dimension tables.

364GG Chicago Bridge & Iron Co.

Tanks, Storage..... Bulletin 574, 12 p., contains descriptions, specifications and dimensions of company's vertical and horizontal tanks. Photographs show typical bulk tank installations in many fields.

364HH Day Co.

Tanks, Storage..... Booklet reviews applications, dimensions, capacities, plate specifications and weights for tanks. Discusses manufacturer's facilities, experience with tanks and vessels.

364II Graver Tank & Mfg. Co.

* From advertisement, this issue

CONTINENTAL FIBRE DRUMS



The finest containers available
for variety, versatility and value

No matter what product you pack, Continental Fibre Drums offer you the widest choice of size, style, and design, combined with rugged durability. From protecting chemicals to preserving the fragrance and freshness of spices, you are sure your product is safe. It has the protection of a superior container.

And Continental offers real value because you

get top quality at low cost. The light weight of these fibre drums cuts down on high freight costs, too.

You get service because our fibre drums are tailor made to suit your product. So get all the advantages of Continental Fibre Drums . . . Leverpak, Stapak, or Fiberpak. You have the finest when you pack your product in a Fibre Drum by Continental.

CONTINENTAL  **CAN COMPANY**

FIBRE DRUM & CORRUGATED BOX DIVISION, NEW YORK, N. Y.

Van Wert • Philadelphia • Pittsburgh • Tonawanda • Cleveland • Chicago • Atlanta • St. Louis • San Francisco • Los Angeles • Eau Claire • Boston

CHEMICAL ENGINEERING—Inventory Issue 1957

Inquiry Code Number for This Advertisement-345

365

New Packaging & Handling Equipment

Literature Available

Tanks, Storage—
Trucks, Handlift

- Tanks, Storage.**.....A catalog & data book on the patented "Tube-seal" System for floating-roof storage includes description of design & construction, applications, operation, etc. Catalog TS-56.
366A Hammond Iron Works.
- Tank, Storage.**.....Complete description of Chemstor line of glassed steel tanks for low-cost storage is offered in Bulletin 918. These un-jacketed, horizontal tanks range from 750 to 35,000 gal. size.
366B Pfaudler Co.
- Tanks, Storage, Plastic.**.....Haveg plastic tanks are economical to install, easy to maintain, durable. Require no painting or costly maintenance, can be readily field repaired where necessary. Bulletin C-13.
366C Haveg Industries.
- Tanks, Tile.**.....Bulletin covers: tile shapes; standard reinforcing bars; wood pulp fibre in solution; capacities of tanks; table of circles; table of spheres; conversion factors. Bulletin TC-155.
366D Stebbins Engrg. & Mfg. Co.
- Tanks & Vessels.**.....Hortonclad has a bond made by a flux-free high strength vacuum bonding process making a clad plate with an integral and continuous strong bond. Request Hortonclad Bul.
397 *Chicago Bridge & Iron.
- Towboats.**.....Described in a 4 p. folder is the Dravo RAM-class 70-foot diesel powered towboat used in a variety of inland waterways operations. "The Dravo RAM Towboat" Bulletin 250-128.
366F Dravo Corp.
- Tractor, Industrial.**.....2 p. leaflet describes industrial tractor designed for towing of interplant trailer trains and for gathering warehouse orders. Includes photographs, specifications, drawings.
366G Hyster Co.
- Tractor-Loaders.**.....TL-6 Tractor-Loader is easily maneuvered in a confined space, with its compact design and short turning radius. Company offers a free descriptive catalog of complete line.
366H Tractomotive Corp.
- Tractor-Shovels.**.....Bulletins cover two Payloader tractor shovels... model HU with a capacity of 1-1/3 cu. yd., 4000 lbs., @ 4 MPH and model HH with a capacity of 1 1/4 cu. yd., 5500 lbs., @ 4 MPH.
366I Frank G. Hough Co.
- Tractor-Shovels.**.....HA "Payloader" and larger model HAH do the work of four previous units. Ideal for any bulk materials you have to scoop-up, load or spread. Details available upon request.
366J Frank G. Hough Co.
- Tractors, Gas.**.....4 bulletins describe tractors: Bulletin T-103 covers model 930 Huskie; Bulletin T-104 covers model 940 Huskie; Bulletins T-105 and T-106 cover models 950-A and 950-H Super Huskie.
366K Mercury Mfg. Co.
- Trailer, Transport.**.....A trailer that transports sugar and other pulverized and granular bulk solids is described in Bulletin A-19. Text and dwgs. show how to load Airveyor trailer from bins or railroad.
366L Fuller Co.
- Trailers, Industrial.**.....2 p. two-color bulletin describing & giving full specifications for Models A-610 & A-660, fifth wheel steer trailers of 4000 & 6000 lb. capacity, respectively. Bulletin TR-101.
366M Mercury Mfg. Co.
- Trailers, Industrial.**.....2 p. two-color bulletin describing & giving full specifications for Models A-510 & A-520, fifth wheel steer trailers of four & six ton capacity. Bulletin TR-102.
366N Mercury Mfg. Co.
- Trailers, Industrial.**.....2 p. bulletin describes & gives full specifications for Models A-614 & A-443, heavy & extra-heavy duty trailers, of 10 ton & 30 ton capacity respectively. Bulletin TR-103.
366O Mercury Mfg. Co.
- Transport Systems, Pneumatic.**.....Illustrated brochure details line of pneumatic transport systems. Includes: technical and operating data; installation; application information. Catalog 52F.
366P Kennedy-Van Saun.
- Transports, Tank.**.....Literature discusses line of chemical and acid tank transports. Novel external ring design permits light weight construction which meets ICC regulations MC-311 and ASME code.
366Q Doyle & Roth Mfg. Co.
- Traps, Magnetic.**.....Magnetic traps for liquid lines for installation in liquid conveying lines protect pumps and screens and remove contaminating iron and iron of abrasion. Bulletin B-1910-B.
437g *Dings Magnetic Separator.
- Traps, Pipeline.**.....Illustrated brochure on liquid-handling magnetic pipeline traps. Gives construction information, dimensions and installation instructions for both models. Bulletin No. B-605.
366S Eriex Mfg. Co.
- Truck, Fork.**.....Design, operation and advantages of the Clarklift-30 gas-powered 3,000-lb. capacity fork truck are covered in a 6-page brochure that also includes information about components of truck.
366T Clark Equipment Co.
- Truck, Fork.**.....6-page brochure on the 4,000-lb. capacity Clark-lift-40 fork truck covers maintenance and operating features, specifications and dimensions. Dwgs. show innovations.
366U Clark Equipment Co.
- Truck, Pallet.**.....Recent changes and improvements made in a 1-ton capacity hydraulic hand pallet truck are illustrated and discussed in bulletin 226. Sketches and photos of applications.
366V Raymond Corp.
- Trucks.**.....8 p. catalog describes company's line of electric powered "Walkie" truck models. Covers, in concise form, capacity and dimension specifications, construction details, etc.
366W Moto-Truc Co.
- Trucks, Automatic Pick-Up.**.....4 p. folder A-304-F-2 describes a truck-mounted detachable container unit with fork-like arms. It enables containers to be picked up and set down automatically.
366X Dempster Bros., Inc.
- Trucks, Dump.**.....Bulletin describes & gives specifications for Model A-370, a caster-steer truck, & Model A-670, a fifth wheel steer truck. Both dump trucks in three capacities. Bulletin TR-104.
366Y Mercury Mfg. Co.
- Trucks, Electric.**.....Lewis-Shepard Electric Trucks enable full use of floor storage, provide mobility between departments, work quickly and safely, cut manpower costs. Master Line Cat. and Cat. 34-1.
366Z Lewis-Shepard Products.
- Trucks, Electric Fork.**.....Four-page folder describes model F-48T3, 3,000-lb capacity fork truck designed for low-headroom operation. Complete design information and specifications included.
366AA Elwell-Parker Electric Co.
- Trucks, Electric Fork.**....."E" model electric fork truck—electric power gives 3 times longer life than other type trucks, lubricated-for-life, 50c. a day for battery charging, magnetic controls. Cat. 32-1.
366BB Lewis-Shepard Products.
- Trucks, Electric Fork.**.....Company offers L-S Master Line Catalog and L-S Model "J" Catalog #33. Model "J" is a compact, maneuverable, silent electric fork lift truck. Request catalogs.
366CC Lewis-Shepard Co.
- Trucks, Fork.**.....Allis-Chalmers fork trucks are safe, easy to maneuver, durable, versatile. They have torque converter drive to stop clutch trouble, rigid channel, pressure-lubricated bearings. Cat.
366DD Allis-Chalmers Co.
- Trucks, Fork.**.....Literature describing Safety Diesel Fork Trucks, which are used at a number of plants where explosive conditions exist. Gives fireproof safety & handling efficiency.
366EE Allis-Chalmers Co.
- Trucks, Fork.**.....Baker "FG" gas trucks feature: heavy-duty industrial truck engine operates at optimum RPM for least strain and abuse; pistons are balanced to grams instead of ounces. Bulletins.
366FF Baker-Raulang Co.
- Trucks, Fork.**.....Engineering specifications, dimensions and mechanical features of 5,000 lb. capacity gas-powered line of fork trucks are contained in a 6-page brochure now being offered on request.
366GG Clark Equipment Co.
- Trucks, Fork.**.....The four major components of electric fork trucks—control circuit, power train, hydraulic system and upright assembly—are described in 8-page four-color brochure.
366HH Clark Equipment Co.
- Trucks, Fork.**.....Construction details, operating characteristics & maintenance features of the Clarklift fork trucks are described in a 16 p. brochure, titled "Clark-lift Features".
366II Clark Equipment Co.

* From advertisement, this issue

1957 INVENTORY

Trucks, Fork. 20 p. illustrated catalog describes the latest in the Master Line of Lewis-Shepard Fork Trucks. Outlines features of "E" truck, pointing out advantages, etc. Request a copy.
367A Lewis-Shepard Prod.

Trucks, Fork. Company announces Winter issue of the Lewis-Shepard Lever, a magazine prepared especially for fork truck users. Offers tips on buying various models of fork trucks. Request subscription.
367B Lewis-Shepard Products.

Trucks, Fork Lift. Allis-Chalmers fork lift trucks cut costs in stevedoring. These trucks are completely safe for indoor hauling. Complete details available to you in Case Study No. 16.
367C Allis-Chalmers Mfg. Co.

Trucks, Fork Lift. FT series fork lift truck starts, steers, drives and shifts like an automobile. Safest in the field . . . most advanced design . . . most serviceable. Catalog BU-300-564.
367D Allis-Chalmers Mfg. Co.

Trucks, Fork Lift. Safety fork lift truck with hydraulic starter; auxiliary hand pump; water muffler; hydraulic pressure accumulator; water manifold; mechanical gages. Bulletin BU-335-564.
367E Allis-Chalmers Mfg. Co.

Trucks, Fork Lift. 21 p. illustrated bulletin describes power and performance of "Pace-Maker" series of Towmotor fork lift trucks. Describes many models, their operation, etc. Bulletin SP-23.
367F Towmotor Corp.

Trucks, Fork Lift. Operator's Manual covers subjects of interest to owners & operators of Towmotor Fork Lift Trucks. Covers operating instructions, specifications, maintenance procedures, etc.
367G Towmotor Corp.

Trucks, Fork Lift. "Greater Maneuverability and Faster Handling With Towmotor Power Steering" illustrates and describes low cost, improved features of Towmotor fork lift trucks.
367H Towmotor Corp.

Trucks, Fork Lift. Illustrated bulletin gives the specifications for Towmotor fork lift trucks. Also includes specifications for Towmotor industrial tractors and electric pallet trucks.
367I Towmotor Corp.

Trucks, Fork Lift. A TowmoTorque folder is available giving full data on TowmoTorque Drive, including detailed information regarding its construction & hydraulic & control systems.
367J Towmotor Corp.

Trucks, Gas. Sturdy Yale Gas Trucks have self-adjusting hydraulic brakes, high-speed power lift, low cowl for better visibility, capacities 2000 to 20,000 lbs. Request Booklet 510ID.
367K Yale & Towne Mfg. Co.

Trucks, Hand Lift. Catalog discusses hydraulic and mechanical hand lift trucks and skid platforms. Covers construction features, specifications, advantages, etc. Company gives details in Catalog 26.
367L Lewis-Shepard Products.



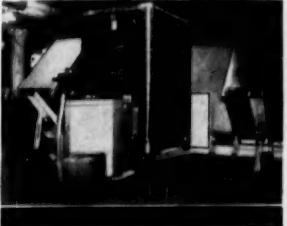
FILL IT



TOTE IT



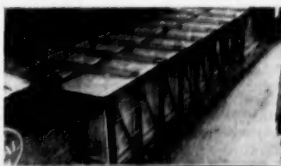
STORE IT



DISCHARGE IT

* * CONTAINER CAR

Developed by Shippers Car Line Corporation and Tote System, Inc., the Container Car carries 28 Tote Bins. One man can unload the car in 35 minutes, using a lift truck. A mileage allowance of 3.7 cents is paid for every mile this car travels.



*Tote and Tote System,
Reg. U.S. Pat. Off.

SEE OUR EXHIBIT IN BOOTH 990 AT
THE 26TH EXPOSITION OF CHEMICAL
INDUSTRIES, COLISEUM, NEW YORK—
DECEMBER 2nd to 6th, 1957

offers unequalled ECONOMY and FLEXIBILITY

- Tote System is a complete, mechanical, automatic bulk materials handling system—aluminum, stainless or carbon steel, monel, or magnesium bins plus filling and discharging equipment.
- Tote System more than pays for itself in a matter of months by (1) eliminating recurring container costs, (2) eliminating product loss, contamination and deterioration; (3) reducing labor and handling costs; (4) reducing warehouse storage space requirements; and (5) preserving original product quality.
- Tote System handles a diverse list of bulk products, including liquids, both in-plant and inter-plant.
- Tote System speeds up weighing and blending operations, accurately and automatically.
- Tote System—and only Tote—permits you to weigh incoming materials as a check against invoice weight and for a permanent inventory record.
- Tote System permits the use of a minimum, uncomplicated conveyor system with an accompanying reduction in clean-up and maintenance time.
- Tote System offers complete transportation flexibility. Tote bins can be shipped by rail** or truck, or Tote Bins can be left in the plant and filled from hopper cars or trucks.
- Tote System offers maximum flexibility to meet future conditions. Plant layouts can be changed easily by simply re-locating discharge stations. Operations can be expanded merely by procuring additional Bins. And Bins can be used interchangeably for different products.
- Tote System is prepared to furnish engineering and layout service, and can design and build specialized equipment to meet your particular needs.

It will pay you to investigate Tote System. Let our engineers survey your plant at no obligation. Meanwhile, write for new catalog containing complete details, including some special applications and a partial list of users.

TOTE SYSTEM, INC.
600 SOUTH 7th, BEATRICE, NEBR.

New Packaging & Handling Equipment 1957 INVENTORY

Literature Available

Trucks, Industrial—
Weights, Digital, Remote

Trucks, Industrial......Design, engineering, construction and operating features of fork-lift trucks, towing tractors and platform trucks are described in 20-page catalog BU-305 now available.
368A Allis-Chalmers Mfg. Co.

Trucks, Industrial......Complete line of Baker-Raulang industrial trucks are described in bulletin 57. Included are data on construction features and tables of specifications.
368B Baker-Raulang Co.

Trucks, Industrial......Complete Clark line of fork-lift trucks, straddle carriers, powered hand trucks and towing tractors is described in 16-page catalog just out. Illustration and specifications for each.
368C Clark Equipment Co.

Trucks, Industrial......The L-S Jack-stacker is the most flexible and easiest to operate "walkie" in the field. Comes in straddle-type, pallet, platforms, etc. Company gives details in Catalog No. 34.
368D Lewis-Shepard Products.

Trucks, Industrial......Offers complete line of industrial trucks. The Master Line. Illustrated booklet covers electric fork trucks, electric tiering trucks stackers, cranes, etc. Circular 80-203.
368E Lewis-Shepard Products.

Trucks, Lift......Model FT-100 lift truck has the extra weight, traction and operator controls for superior performance. Can carry a full load up a 25% grade. Send for Bulletin BU-334A.
368F Allis-Chalmers Mfg. Co.

Trucks, Lift......Facts on a complete line of manually propelled, battery gathered in illustrated 24-page operated hydraulic lift trucks are catalog. Concept of In-Between Handling is explained.
368G Big Joe Mfg. Co.

Trucks, Lift......24-page booklet was prepared for use as part of operator-training program. Covers operation of lift truck, preventive maintenance, safety and basic materials handling.
368H Hyster Co.

* From advertisement, this issue

Chemicals—1957

... and Equipment are reviewed in this issue which inventories the period August 1956-August 1957. It's a handy rundown of major developments during the last thirteen months. And additional information is free, fast and easy if you use the Reader Service postcards inside the back cover.

Trucks, Lift......2500 lb. SpaceMaster Model JPTT 2.5 has been designed for extremely heavy duty operation... especially when the operation involves constant stopping and starting. Request Circular 33-E.
368I Lewis-Shepard Products.

Trucks, Lift......2 drive wheels, 2 braking systems, 4 wheel stability, alloy gear transmission, 100% more steering ease, 50% less maintenance, finger-tip control affording greater safety. Catalog 65.
368J Lift Trucks.

Trucks, Lift......The "Ohio" lift truck affords low-cost, one-man operation, picks up and releases automatically at proper height; is adjustable for load lifts from 1,000 to 1,250 lbs. Catalog 56 P.
368K Portable Lift Trucks.

Trucks, Lift......Issue of "Handling" offers clues to effective handling methods. Lead-off article tells how fork lift trucks are used in the handling of atomic waste. Request copy.
368L Towmotor Corp.

Trucks, Low-Lift......Low-lift Model "M" rider type trucks in both the pallet type for handling single face or double face pallets and the platform type for skid platforms. Circular 35P.
368M Lewis-Shepard Products.

Trucks, Magnesium......Series of product bulletins covers complete line of four-wheel magnesium trucks. Detailed descriptions and specification data on platform, trailer, box and towveyor trucks.
368N Magline, Inc.

Trucks, Materials Handling......132 p. catalog on the Master Line of materials handling trucks describes in detail the many models of L-S trucks available. Indexed into five categories. Request a copy.
368O Lewis-Shepard Products.

Trucks, Platform......2 p. leaflet describes a platform truck designed to transport loads of up to 4,000 lb. safely and rapidly through confined aisles and crowded areas of terminals and warehouses.
368P Hyster Co.

Trucks-Storage Racks......20 p. catalog describes full line of Floor-master Trucks and Loadmaster Storage Racks. Contains complete specifications and applications. Details are available in Catalog 29-1.
368Q Lewis-Shepard Products.

Unloaders, Pallet......The Alvey De-Palletizer is designed to receive pallet loads of cases and automatically unload each pallet onto a conveyor line. Bulletin F-225 describes unloader.
368R Alvey Conveyor Mfg. Co.

Unloaders, Pneumatic......"Portaflow" portable pneumatic unloader for use with airslide cars, will effectively move and convey all types of dry, pulverized and granular materials. Bulletin 126.
416-70 Sprout-Waldron Co.

Unloading......Wall chart gives instructions for the safe unloading and handling of sulphuric acid. Describes methods for pump air unloading of tank cars—especially cold weather procedure.
368T Olin Mathieson Chem. Corp.

Unloading, Tank Cars, Liquid Chemicals......Covers aqueous ammonia; lime sulfur solution; sodium silicate solution; sodium sulfide, liquid. "Unloading 'Non-Regulatory' Liquid Chemicals from Tank Cars."
368U General Chem. Div.

Unloading, Tank Cars, Rubber-Lined......The following chemicals are covered: liquid alum; aluminum chloride; muriatic acid; and phosphoric acid. See "Unloading Rubber-Lined Tank Cars."
368V General Chem. Div.

Unloading, Tank Cars, Steel......Chemicals covered: electrolyte; hydrofluoric acid; mixed acid or nitrating acid; oleum; spent acid; sulfuric acid; fluosulfonic acid. "Unloading Steel Tank Cars."
368W General Chem. Div.

Vessels, High Pressure......Cole can build you the kind of high-pressure tanks or vessels you require, any size, any shape, any metal. For product information, request catalog, "Tank Talks."
368X R. D. Cole Mfg. Co.

Vibrator, Bin......Information about the UCV series of Vibrators is presented in a brochure. Units are used for moving, sifting, settling, conveying or packing granular material of every type.
368Y Martin Engineering Co.

Vibrators......Movement of granular solids with the Peterson Vibrator is detailed in 36-page catalog. Line dwgs. suggest a variety of mountings. Specifications and performance data are listed.
368Z Martin Engineering Co.

Vibratory Equipment......Electro-permanent magnetic Hi Vi vibratory equipment needs no rectifier. Operates at 3600 CPM directly off an AC line. Units are automatically self-adjusted. Request data.
368AA Eriez Mfg. Co.

Warehouses......Company announces the availability of application analysis on materials handling in grocery warehouses. Includes descriptions & illustrations. Request analysis #152.
368BB Lewis-Shepard Products.

Weighter, Conveyor Belt......How the modified Conveyoflo meter continuously feeds and totalizes belt-conveyed dry material is described in Bulletin 550-P5. Dimensional data and line drawings.
368CC Builders-Providence.

Weighters, Gross......Bulletin 0356 describes E-52 gross bagger which weighs and bags in 25 to 100 lb. bags. Photos of scale and components, schematics of feed arrangements and drawings.
368DD Richardson Scale Co.

Weighing, Industrial......Company offers Check-Chart through which weighing information can be assembled quickly. Kit includes instructions, relationship of weighing to cost, etc.
368EE Toledo Scale Co.

Weights, Digital, Remote......Toledo weight data systems feature digital weights transmitted anywhere; automatic bulk weighing; product testing and sorting; dial location wherever you choose. Booklets.
368FF Toledo Scale Co.

Aligner, Flange

Aids welding of flange to pipe. (369A)

... Line-O-Tool line-up clamp positions weld-neck flanges or stub-ends on pipe prior to welding. Three-blade

design assures positive line-up of surfaces.—*Line-O-Tool Co., Houston 2, Tex.*

Bender, Heavy-Pipe

Bends pipe 6 in. and larger. (369B)

... Large pipe bender makes possible cost savings by bending large pipe in the field rather than welding sections together, or doing bending in

fabricator's plant. Device can bend pipe 6 in. and larger up to 90 deg. in one setting.—*Tal Bending Equipment, Inc., Milwaukee 2, Wis.*

Compensator, Piping

Compensates for strains in system. (369C)

... Piping compensator takes care of all strains in steam, air, hydraulic and refrigeration pipe lines. Unit consists of two ball seats which are spring-seated individually so that

movement is possible in all directions, including unlimited traverse expansion. All internal parts are corrosion resistant.—*Rotherm Engineering Co., Chicago 31, Ill.*

Connection, Outlet

For pipe branches. (369D)

... Couplets, easy-to-install branch outlet connections, are designed as universal outlet connections. They're

used without modification on most applications.—*H. K. Porter Co., Inc., Roselle, N. J.*

Coupler, Pipeline

Used with portable aluminum lines up to 1,000 psi. (369E)

... FMC coupler, available in both OD and IPS sizes for working pressures up to 1,000 psi., now is being used with portable aluminum pipelines. These pipelines can be moved from six to 10 times faster than older

types of portable pipelines. And with the FMC fast-move coupler, such lines are easy to dismantle and clean at any time.—*John Bean Div., Food Machinery & Chemical Corp., San Jose, Calif.*

Coupling, Valve

Stops flow when line is uncoupled. (369F)

... Leak-proof Dubl-Safe valve coupling can be used both as a hand valve and quick-coupler. Device consists of a primary valve within a secondary

valve. Primary valve serves as a safety device for main valve.—*Harrison-Fischer Mfg. Co., Fort Worth, Tex.*

Disk, Rupture

For severe service conditions. (369G)

... Model D rupture disk brings safety-head protection to installations where pressure, temperature and cor-

rosion are too severe for conventional disks.—*Black Sivalls & Bryson, Inc., Kansas City 26, Mo.*

Flange, Steam Tracing

Joins extruded steam-trace Al pipe. (369H)

... Cast flange joins section of Unitrace—integrally extruded steam-trace aluminum pipe—simply and efficiently. Flange has built-in steam-tracing line

which prevents product from freezing in the space between Unitrace sections.—*Aluminum Co. of America, Pittsburgh 19, Pa.*

Flanges, Insert

Make possible piping changes sans welding. (369I)

... Through use of Speedline insert flanges, it's possible to tie in new equipment and break into existing lines and headers without resorting to welding. Pipe or Speedline stain-

less steel fittings can be expanded into the insert flanges to minimize down time and make strong leak-proof joints.—*Horace T. Potts Co., Philadelphia 34, Pa.*

Fitting, Aluminum

Two-in-one type for pipe structures. (369J)

... With Hosking 300 fitting—two-in-one fitting holding both vertical and horizontal runs—one unskilled man can build any structure or rack of pipe or tubing in less time than 3 to 5 experienced men require when using ordinary fittings or welding. All he needs to do is slip fitting on pipe or tubing and tighten set screws by hand with a turn of an ordinary hex wrench. Fitting comes in four iron pipe sizes, four sizes for heavy-gage steel or aluminum tubing.—*John H. Hosking Co., Cincinnati 23, Ohio.*



New Pipe, Fittings & Valves

1957 INVENTORY

Fitting, Tube

Two-piece plastic fittings need no flaring, are reusable. (370A)

... Because of simplified two-part design, fitting fabricated from Zytel nylon resin needn't be flared nor the tubing "necked" or cut to an exact length for leakproof connections. Thus

both tubing and fittings can be reused. Fittings are intended for both metal and plastic tubing of 1/16 through 1 in. O. D.—*Jaco Mfg. Co., Cleveland 7, Ohio.*

Fittings, Plastic

In standard shapes and sizes. (370B)

... Ducts, hoods, fittings of polyester, glass-reinforced plastic are available in standard shapes and sizes, also custom built. Initial installation and

maintenance costs less than for other materials with comparable corrosion resistance.—*Haveg Industries, Inc., Wilmington, Del.*

Fitting, Tube

Makes butt-tight joint for pressure range. (370C)

... Hi-Seal flareless tube fitting withstands high pressures, hydraulic surge, vibration and other severe operating conditions. Flareless fitting

forms a butt joint so that tubing need not be sprung when making assemblies.—*Imperial Brass Mfg. Co., Chicago 7, Ill.*

Fittings, Plastic

Eliminate leaks at joints. (370D)

... Paper-thin layer of plastic on inside wall of Uscoweld styrene-acrylonitrile fittings eliminates joint leaks in cemented pipe installations. High

contact pressure between pipe and fitting causes a positive leak-proof weld.—*U. S. Rubber Co., New York 20, N. Y.*

Joint, Expansion

Designed for rigidly fixed PVC piping. (370E)

... First slip-type expansion joint of unplasticized polyvinyl chloride is available in 1, 2 and 3-in. sizes. It's used with rigidly fixed PVC piping

which may be subjected to thermal cycles. All sizes allow expansions to 3 1/2 in.—*Tube Turns Plastics, Inc., Louisville, Ky.*

Joints, Expansion

More flexible to give uniform movement. (370F)

... Basic design change in Badger's expansion joint incorporates a different shape in the corrugations which form the flexing member. New shape makes height of each corrugation more effective by contributing to flexibility and more uniform movement per cor-

rugation. Under operating pressures and temperatures, new corrugation in Service-Rated joints assumes completely curved shape and actually exhibits a breathing movement as pressure fluctuates.—*Badger Mfg. Co., Cambridge, Mass.*

Nozzle, Fog

Non-clogging, corrosion resistant. (370G)

... HR Line of hard-rubber fog nozzles is non-clogging, corrosion resistant with practically any spray, long wearing and inexpensive to use. Nozzles are considered ideal where

metal would corrode and where other non-metals are hampered by chemical properties, high temperature or cost.—*Bete Fog Nozzle, Inc., Greenfield, Mass.*

Nozzle, Spray

Large size for cooling and washing operations. (370H)

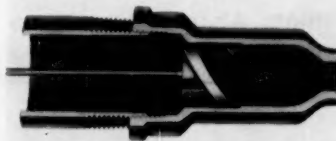
... Large-capacity flat-spray nozzle, 2-U-Veejet, supplied in choice of two types of spray angles, can discharge from 73 gpm. at 15 psi. to 330 gpm.

at 300 psi. Nozzle is designed for heavy duty cooling and washing operations.—*Spraying Systems Co., Bellwood, Ill.*

Nozzle, Spray

Has removable vane for cleaning in place. (370I)

... To simplify cleaning of spray nozzles in hard-to-get-at places, Full-jet nozzle is available with pull-out vane. Small female threaded connection in vane receives pull-out rod installed by user. Length of rod can be selected so that it extends back inside pipe to some connection point that's easily accessible. When nozzle requires cleaning, vane is drawn back through the pipe, removed and cleaned. Nozzle itself is flushed out before vane is returned.—*Spraying Systems Co., Bellwood, Ill.*



FOR MORE INFORMATION on any item in this section, write its code number on one of the Reader Service postcards (inside back cover) and mail. It's fast and easy.

Operator, Valve

Provides maximum range of valve adjustment.
(371A)

... Standard bracket and linkage arrangement for butterfly valves greatly simplifies their hookup with automatic control operators. At the same time,

it offers distinctive and important advantages in operation, adjustment and maintenance—*W. S. Rockwell Co., Fairfield, Conn.*

Pipe, Aluminum

For temporary pipelines.
(371B)

... In oil-producing areas, aluminum pipe is gaining wide acceptance for temporary pipe lines. At least 3x footage per lb. compared to steel

makes aluminum pipe economical in original cost. Savings in labor, time and maintenance result.—*Reynolds Metals Co., Louisville 1, Ky.*

Pipe, Nylon

Extends pressure, temperature range for plastic pipe.
(371C)

... Tempertube nylon pipe is said to be the first plastic pipe able to convey liquids over full range of temperatures and pressures encountered in main piping application. Compared with other pipe of comparable dimensions,

Tempertube provides greater bursting strength and ability to withstand higher temperatures than any other plastic; is priced competitive with copper.—*Danielson Mfg. Co., Danielson, Conn.*

Pipe, Polyethylene

Handles tough jobs.
(371D)

... SP plastic pipe, made with Allied Chemical & Dye Corp.'s low-pressure polyethylene exhibits properties superior to those of any polyethylene pipe yet produced. Among features are higher bursting strength, resistance to impact, absence of stress cracking, superior heat resistance and resistance to chemicals, organic solvents and hydrocarbons. Because of improved physical

properties, SP pipe can be recommended for substantially higher working temperatures and pressures than pipe made from conventional polyethylene resins. Pipe is available in $\frac{1}{4}$ through 2-in. sizes and it carries the National Sanitation Foundation approval for potable water service.—*Orangeburg Mfg. Co., Orangeburg, N. Y.*

Pipe, PVC

Has uniform pressure rating in all sizes.
(371E)

... Schedule PR-150 light-wall polyvinyl chloride pipe, with uniform pressure rating in all sizes, has thinner wall and larger inside diameter with resultant higher flow capacity. There are two types—one has high chemical

resistance and maximum working pressure of 150 psi. at 75 F.; the other has high impact strength and rating of 125 psi. at same temperature.—*Carpenter Steel Co., Alloy Tube Div., Union, N. J.*

Pipe, Resistant

In long lengths for process.
(371F)

... Two corrosion-resistant stainless steels, Carpenter Alloys B and C, are now available for first time in full-finished, long lengths of tubing and pipe. Mill lengths up to 20 $\frac{1}{2}$ ft. are

supplied for use anywhere that extra long lengths are required for process lines, heating coils and similar uses.—*Carpenter Steel Co., Alloy Tube Div., Union, N. J.*

Pipe, Steam-Traced

More efficient.
(371G)

... Lower cost and higher efficiency of steam-traced piping are reported possible with new Unitrace design.

Formerly oval, cross section now matches standard pipe.—*Aluminum Co. of America, Pittsburgh 19, Pa.*

Pipe, Vinyl

Transfers corrosive liquids.
(371H)

... Corrosive fluids flow through PVC pipes at Reheis Co.'s plant in Berkeley Hts., N. J., without picking up contamination or corroding the pipe.

6,200 linear ft. of 2- and 4-in. pipe and 4,930 fittings are made from Geon rigid-PVC resin.—*Alpha Plastics Co., Livingston, N. J.*

Pipeline, Aluminum

Installed on gas transmission line service.
(371I)

... Nearly four miles of Schedule 40, 8-in. aluminum pipe has been installed as part of the gas transportation system servicing Alcoa's Point Comfort, Tex., operations. Pipe, buried in soil, is devoid of protective coatings and anodes. Line is shielded only by electrical insulation at certain flanged joints. Pipe's high corrosion resistance provides long service.—*Aluminum Co. of America, Pittsburgh 19, Pa.*



New Pipe, Fittings & Valves

1957 INVENTORY

Plug Valve, Jacketed

Redesigned for operation with worm gear. (372A)

... Optional operation with worm gearing now is offered on a line of jacketed 2- and 3-way plug valves for 3- and 8-in. lines. Value of gear operation has increased by redesigning the standard valve. Among new

features of the valve are: deeper stuffing box to accommodate more packing; thrust ball on which plug rotates with screw to adjust seating of the plug in the body.—*Parks-Cramer Co., Fitchburg, Mass.*

Shields, Diaphragm

Protect rubber valve diaphragms from heat. (372B)

... Standard molded Teflon and Kel-F diaphragm shields are available for installation over valve rubber diaphragms to provide resistance to corrosion and heat. Diaphragm shields

come in seven sizes for valves 3 in. and smaller. Shields can exceed 100,000 cycles on 90-psi. water service without failure.—*Garlock Packing Co., Palmyra, N. Y.*

Trap, Steam

For hot condensate. (372C)

... Monovalve float-thermostatic steam trap, built to discharge condensate at steam temperature, uses only one valve

to vent air, discharge water and check back flow.—*Velan Valve Corp., Plattsburg, N. Y.*

Union, Insulating

Prevents electrolytic corrosion of pipelines. (372D)

... Insulating forged-steel unions are available to prevent electrolytic corrosion due to flow of electric current along pipelines. Carbon steel,

fabric-reinforced phenolic resin and Teflon are used in making union.—*W-S Fittings Div., H. K. Porter Co., Inc., Roselle, N. J.*

Valve, Ball

Constructed of PVC. (372E)

... Double-Seal-design ball valve is made of polyvinyl chloride for handling corrosive and other difficult fluids. Sturdy construction permits use

in many plastic or metal piping systems for either vacuum or pressure service.—*Jamesbury Corp., Worcester, Mass.*

Valve, Check

Resists corrosion. (372F)

... Rubber-lined horizontal swing-check valve may be used to handle corrosive acids and chemicals. Valve

body is rubber-lined cast iron or fabricated steel.—*La Favorite Rubber Co., Hawthorne, N. J.*

Valve, Control

Largest high-pressure ball valve made. (372G)

... 8-in. ball-type control valve operates up to 2,000 psi. and 225 F. with range of liquids or gases under severe operating and environmental con-

ditions. Flo-Ball design produces unobstructed, straight-through flow with minimum pressure drop.—*Hydromatics, Inc., Cedar Grove, N. J.*

Valve, Needle

(372H)

... Bubble-tight needle valve meets exacting requirements of fluid systems where corrosion is a problem. Kel-F needle seals against low-friction Quad-

Ring. Virtually wearproof sealing is assured for high or low pressure vacuum. Valves don't stick.—*Chemtrol Corp., Compton, Calif.*

Valve, Pinch

Operating mechanism closes fast. (372I)

... Outstanding feature of new models of Masaco-Grigsby pinch valve is Hydral-Air operating mechanism which closes valve rapidly and easily. Consisting of air-hydraulic pump, mechanism can be installed as a cen-

tralized unit that operates several valves. It can be equipped for automatic regulation where it's essential to control liquid level in tanks or rate of flow in pipes.—*Mine & Smelter Supply Co., Denver, Colo.*

Valve, Plug

Sealed by O-rings. (372J)

... Plug valve opens and closes against pressure without effort, yet provides absolute leakproof shutoff.

Plug is sealed by ingenious use of O-rings.—*Circle Seal Products Co., Inc., Pasadena 8, Calif.*

Valve, Plug

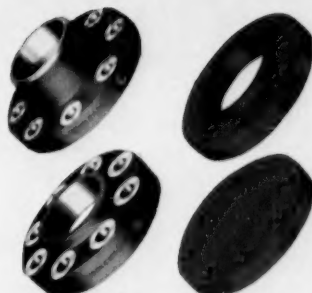
Has Teflon sleeve to eliminate lubrication. (372K)

... Line of stainless-steel plug valves incorporating Teflon sleeves is recommended for liquid and gaseous corrosives, solvent and slurry services. It's also suited for hydraulic and pneumatic services where standard valves won't seat because of mechan-

ical interference from entrained solids, polymerization, crystal line deposits or heavy slurries. Low-Friction Teflon sleeve permits plug to turn freely under all operating conditions.—*Continental Mfg. Co., New York 17, N. Y.*



IPS—BUTT WELDING FITTINGS
 $\frac{1}{2}$ "-42" From Sch. 5S to 4" Walls



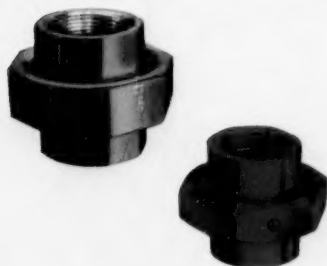
ASA and MSS FLANGES
 $\frac{1}{2}$ "-24" 150 through 2500 lbs.



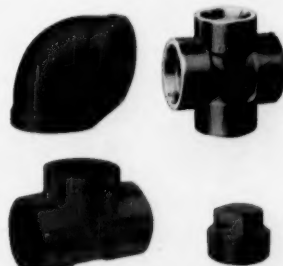
TUBE O.D.—BUTT WELDING FITTINGS
 $\frac{1}{2}$ "-36" From .049" to .250" Wall



LARGE O.D. and TEMA FLANGES
 Up to 20' in Diameter
LONG WELDING NECKS
 1"-24" 150 through 2500 lbs.



UNIONS
 $\frac{1}{8}$ "-4" 150 lbs. and 2000 through 6000 lbs.



SCREWED and SOCKET FITTINGS
 $\frac{1}{8}$ "-4" 150 lbs. and 2000 through 6000 lbs.

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Service*

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*Controlled
Quality*

**FORGED AND
WROUGHT
FITTINGS**

**CARBON • ALLOY
STAINLESS STEELS
AND ALUMINUM**

WHATEVER your fittings requirements... regardless of the type, size, wall thickness, pressure rating or material specification... you can get prompt, efficient, *complete service* by specifying LADISH and ordering from your local Authorized Ladish Distributor.

A broad, full-range line produced to unsurpassed standards of metallurgical and manufacturing integrity... plus adequate distributor stocks... gives you double assurance of satisfaction.

For complete service on your fittings requirements... call your Authorized Ladish Distributor.

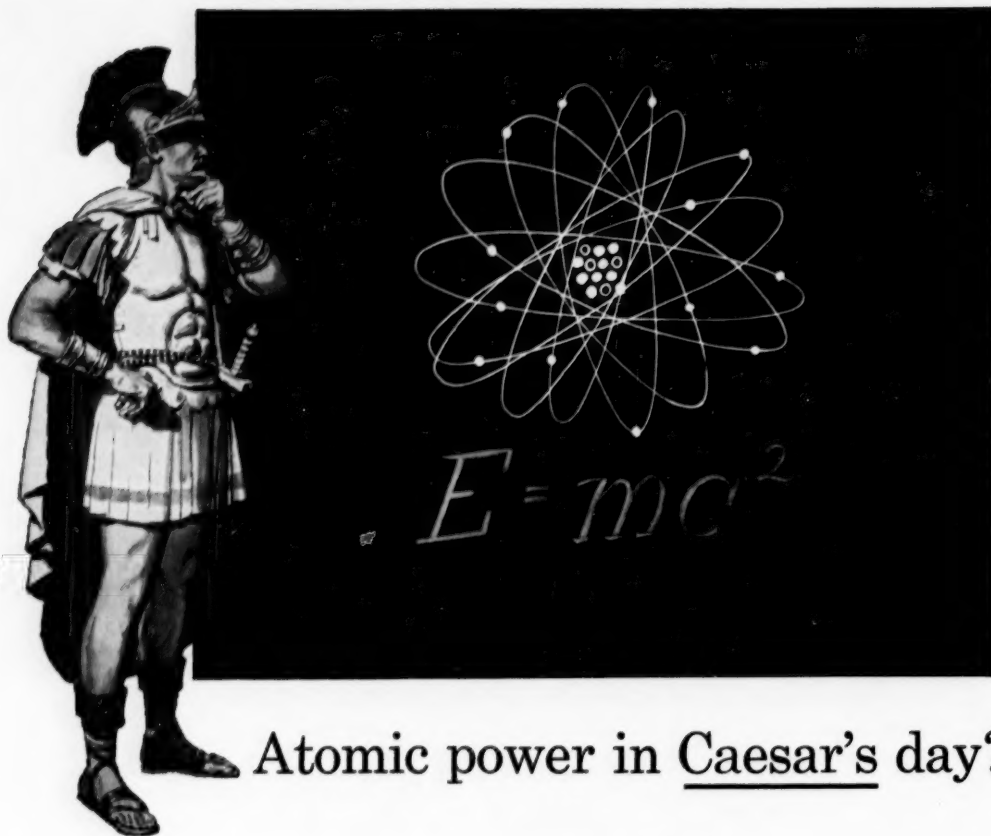
*Catalogs available on
request. Please indicate specific
product lines for which
information is desired.*

THE COMPLETE *Controlled Quality* FITTINGS LINE

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Atomic power in Caesar's day?

Certainly!

It was there, in the ground, in the air and water. It always had been. There are no more "raw materials" today than there were when Rome ruled the world.

The only thing new is knowledge . . . knowledge of how to get at and rearrange raw materials. Every invention of modern times was "available" to Rameses, Caesar, Charlemagne.

In this sense, then, we have available *today* in existing raw materials the inventions that can make our lives longer, happier, and inconceivably easier. We need only *knowledge* to bring them into reality.

Could there possibly be a better argument for the strengthening of our *sources* of knowledge—our colleges and universities? Can we possibly deny that the welfare, progress—indeed the very *fate*—of our nation depends on the quality of knowledge generated and transmitted by these institutions of higher learning?

It is almost unbelievable that a society such as ours, which has profited so vastly from an accelerated accumulation of knowledge, should allow anything to threaten the wellsprings of our learning.

Yet this is the case

The crisis that confronts our colleges today threatens to weaken seriously their ability to produce the kind of graduates who can assimilate and carry forward our rich heritage of learning.

The crisis is composed of several elements: a salary scale that is driving away from teaching the kind of mind *most qualified* to teach; overcrowded classrooms; and a mounting pressure for enrollment that will *double* by 1967.

In a very real sense our personal and national progress depends on our colleges. They *must* have our aid.

Help the colleges or universities of your choice. Help them plan for stronger faculties and expansion. The returns will be greater than you think.

If you want to know what the college crisis means to you, write for a free booklet to: HIGHER EDUCATION, Box 36, Times Square Station, New York 36, New York.



Sponsored as a public service, in cooperation with the Council for Financial Aid to Education

Valve, Slide

For low-pressure gases.
(375A)

... Lightweight slide valve regulates low-pressure gases with entrained contaminants. Design permits easy

cleaning of valve.—*Zimmerman & Jansen, G. M. B. H., Dueren-Rheinland, Germany.*

Valve, Storage

For high-pressure shut-off.
(375B)

... Exclusive shutoff valve for service on high-pressure storage of gas or liquid operates instantaneously when a small, completely contained explosive squib is fired. Products of

combustion from explosion are sealed within chamber to prevent any possible system contamination.—*Explosive Products Div., Conax Corp., Buffalo 21, N. Y.*

Valve, Titanium

Strong, light and corrosion resistant.
(375C)

... 6-in. DiFab wedge-gate titanium valve is stronger, lighter and more corrosion resistant than stainless steel valve. Despite high cost, valve

will find use in pulp and paper mills, chemical plants, oil refineries, nuclear reactors.—*Fabri-Valve Co. of America, Portland, Ore.*

Valves, Vacuum

Flexible, simple, low-cost ball type.
(375D)

... Line of ball valves for high-vacuum service will hold vacuum in either direction. All valves are tested for vacuum tightness. Simple design

and construction assures rugged, dependable, low-maintenance service.—*NRC Equipment Corp., Newton Highland 61, Mass.*

Valves, Vacuum Gate

Full opening with short flow path.
(375E)

... Three types of high-vacuum, straight-through gate valves will seal vacuum-tight in either direction. In all types and sizes, valve plate is connected to a follower carriage through two hinged links and is guided by rollers in opening and closing. Slid-

ing motion of mechanism prevents any scuffing of plate gasket. Actuation for valves is either throttling manual, quick-acting manual or pneumatic.—*Consolidated Electrodynamics Corp., Rochester Div., Rochester 3, N. Y.*

Warmer, Valve

Shaped to fit valve.
(375F)

... Thermo-Panel coil clamp-on valve warmer can replace clumsy tube coils or be used rather than expensive jacketed valves. Warmer is made from two sheets of metal. Outside sheet

is embossed to provide flow channels; inside sheet is flat. Warmer is easily installed and removed.—*Dean Thermo-Panel Coil Div., Dean Products, Inc., Brooklyn 38, N. Y.*

Literature Available**NEW PIPE, FITTINGS & VALVES**

Accessories, Hose.....8 p. booklet covers all LE-HI Hose Couplings, Hose Clamps, Hose Nipples, Manifolds and Valves, giving information about type, size and classifications. Catalog 18.
375G Rose Accessories Co.

Accessories, Installations.....16 p. catalog of Installation Accessories for lubrication, hydraulic, steam, liquid, & air applications. Contains information, specifications, & prices. Catalog 17-E.
375H J. N. Fauver Co.

Adapters, Tube Fitting.....12-page catalog 4360 shows straight thread plugs and adapters, O-rings for straight thread fittings and steel and brass pipe fittings. Specifications for each part.
375I Parker Appliance Co.

Calculator.....Handy pocket slide calculator for figuring water pipe and paper stock pipe friction losses. Measuring 9 1/4 by 4 in., it carries a table of equivalent lengths for new valves for turbulent flow.
375J Allis-Chalmers Mfg. Co.

Clamps, Pipe or Conduit....."Latrobe" Clamp, made of high quality malleable iron, cadmium plated to prevent rust, has double bite of case hardened tool steel. Company makes details available.
375K Fullman Mfg. Co.

Clamps, Plastic Pipe.....Catalog page PP-1256-15 shows general specifications and descriptive data on Sure-Tite stainless-steel clamps for plastic pipe. They are designed for all sizes of plastic pipe.
375L Wittek Mfg. Co.

Coils.....Type "R" coils for installations where frequent mechanical cleaning of the inside of the tubes is required. Complete drainability, easily cleaned, high heat transfer. Catalog R-50.
375M Aerofin Corp.

Coils.....20 p. bulletin describes Type W, B, and C Standard hot water coils, as well as a high capacity Type B Booster Coil. Dimensions, specifications, applications, coil selection, etc. Catalog 404.
375N McQuay, Inc.

Coils, Expansion.....Bulletin describes Type X direct Expansion Coils, giving specifications, features, coil ratings, basic rating curves, dimensions, sizes, coil nomenclature, etc. Catalog 403.
375O McQuay, Inc.

Coils, Smooth-Fin.....Aerofin smooth-fin coils offer you: greater heat transfer per sq. ft. of face area; lower airway resistance—less power per c.f.m. For details, request copy of Bulletin S-55.
375P Aerofin Corp.

Cores, Magnetic.....4 p. bulletin describes and gives specifications and data on standard grades of Ferramic "S-3" Magnetic Cores, including graphs, tables, etc. Details in Bulletin MT-104.
375Q General Ceramics Corp.

Couplets.....W-S Couplets are designed to function as universal outlet connections for tanks, process vessels and pipe lines. Eliminate need for large, expensive field inventories. See Bulletin CP-1-57.
375R Watson-Stillman Fittings.

Coupling.....The HK quick-connect, quick-disconnect coupling described in Bulletin 270 uses Teflon seals throughout. Coupling will handle acids, alkalis, solvents, and steam over wide temperature range.
375S Snap-Tite, Inc.

New Pipe, Fittings & Valves

1957 INVENTORY

Literature Available

Couplings—
Fittings, Stainless Steel

Couplings.....Catalog covers Ajax Series D-100 Standard. Floating Shaft & Mill Motor type Dihedral Couplings. Working data on sizes, capacities, & dimensions of Series D-100 Couplings. Catalog 62.
376A Ajax Flexible Coupling Co.

Couplings.....Durabla Reducing Couplings are now available to match Durabla Basic Check Units. This combination is all you need to form a low cost, all stainless-steel check valve. Bul. CE77.
376B Durabla Mfg. Co.

Couplings.....Falk Steelflex Couplings will prolong machinery life and save money. They are versatile, efficient and economical. Engineering bulletin includes selection and dimension tables.
376C Falk Corp.

Couplings.....Catalog describes Morflex couplings. Explains the Morflex principle, employing preloaded rubber biscuits as the flexible medium. Specifications and dimensions in Cat. C41-56.
376D Morse Chain Co.

Couplings.....Offer a coupling Selection Chart, which reduces time necessary to select a flexible coupling to minutes. Gives critical specifications of Roller Chain, Morflex & Silent Chain Couplings.
376E Morse Chain Co.

Couplings.....Packless couplings are ideal in excessive movement where heat weakened soldered or brazed joints won't stand up. They are hand machined of top quality brass. Details in Bulletin DC.
376F Packless Metal Hose.

Couplings.....Bulletin describes "Snap-Tite HK" coupling, which introduces quick coupling for acids, alkali and high pressure steam. Performs through -100 F to a +500 F temp. range. Bul. #270.
376G Snap-Tite Inc.

Couplings, Chain, Flexible.....Catalog gives specifications, dimensions, ratings and application on series DSC, series SA silent chain couplings and series DRC roller chain couplings. Catalog C45-56.
376H Morse Chain Co.

Couplings, Flexible.....Up to 15 years maintenance-free service is not unusual with Lovejoy lubrication-free flexible couplings. They are of simple, rugged construction with double-life cushions. Catalog.
376I Lovejoy Flexible Coupling Co.

Couplings, Flexible.....Offers information concerning a coupling incorporating a brake drum flange on the outer diameter. Available in eight sizes with hp ratings from 2 to 40 at 1750 rpm.
376J Lovejoy Flexible Coupling Co.

Couplings, Flexible, Miniature.....Bulletin pictures, describes and shows dimensional drawings of miniaturized couplings which can be used on servo-mechanisms, computers, etc. Bul. MC-100.
376K Thomas Flexible Coupling Co.

Couplings, High Pressure.....Snap-Tite seals lines automatically when you disconnect, opens to full, free flow when you connect. Both operations done instantaneously. Cut-away dwgs., engineering data.
376L Snap-Tite, Inc.

Couplings, Hose.....LE-HI heavy duty high pressure hose couplings and their application to air, steam, gas, liquid and hydraulic lines are described and illustrated in 8 p. Bulletin No. 115.
376M Hose Accessories Co.

Couplings, Pipe.....Now approved by the Underwriters' Laboratories for hazardous fluids is the all-steel Quik-Joint pipe coupling. No pipe threads needed. Good for pressures to 2,000 psi. Bulletin.
376N Guardian Products Corp.

Ducting Systems, Polyethylene.....How welded polyethylene ducting solved corrosion problems in handling of alkali and acid fumes is treated in booklet. Application and specification data given.
376O American Agile Corp.

Elbows, Reducing.....Offer advantages in both piping design & piping cost. Need only 2 welds instead of the 3 required by a standard elbow & a reducer. For details, request Catalog 54.
376P Midwest Piping Co.

Engineering Service, Joints.....Barco works with your engineers in the selection of joints to meet your requirements. Offers complete line of joints. Company offers details in Catalog Sheet 229.
376Q Barco Mfg. Co.

Fittings.....Bulletin describes Lenz "O-Ring" tube fittings, which eliminate flaring, threading, welding & soldering. Includes description of hydraulic tubing, tube cutters, tube benders, etc.
376R Lenz Co.

Fittings....."Aircraft Piping and Engineering Application Manual" presents data on fitting dimensions, installation and assembly methods, piping application categories, and engineering recommendations.
376S Weatherhead Co.

Fittings, Drainage.....Line of PVC drainage fittings for carrying away corrosive waste liquids. Compared to cast alloys normally used, they cut labor and materials costs drastically. Bul. TTP 119.
376T Tube Turns Plastics, Inc.

Fittings & Flanges.....Vogt drop forged steel fittings and flanges have unmatched strength and toughness for the most severe pipeline duties. Laboratory controlled materials. Catalog F-9.
376U Henry Vogt Machine Co.

Fittings & Flanges, Welding.....Folder describes the full line of carbon, alloy and stainless steel seamless welding fittings and forged steel flanges handled by B&W. Request Folder FB-502.
376V Babcock & Wilcox Co.

Fittings, Flareless Tube.....Catalog 4320 covers flareless type Ferulok tube fittings with the visible bite that is suitable for heavy wall tubing. Includes fittings to mount SAE straight thread boss.
376W Parker Appliance Co.

Fittings, Forged Steel.....Catalog on forged steel pipe fittings contains dimensional, engineering and application data on forged screw-end and socket-welding fittings for high pressure service. Bul. A-3-56.
376X W-S Fittings Div.

Fittings, Hose.....Catalog 4431 describes reusable Hoze-lok fittings with cotton-covered single-wire-braid hose for Freon 12 service. Fittings with male pipe threads, 45 deg. or 37 deg. flare nose or
376Y Parker Appliance Co.

Fitting, Lubrication.....Bulletin BU-61 describes and illustrates advantages of special relief-type lubrication fitting. Attaches to bearing housings of motors, machines or pillow blocks.
376Z Keystone Lubricating Co.

Fittings, Lubrication.....Hundreds of fittings for every requirement together with dimensions are found in catalog, Form 38-23. Also included are special fittings and accessories.
376AA Stewart-Warner Corp.

Fittings, Nozzles.....Spraco has the most complete line of nozzles available anywhere—in stock. From 1/8 pints/min. to 4,000 gal./min. Bronze, cast iron & stainless steel. Write for catalog.
389 *Spray Engineering Co.

Fittings, Pipe.....Company offers comprehensive catalog of their stainless steel pipe fittings, corrosion resistant and reasonable in price. Also a free flange dimensional slide rule.
376CC Camco Products Inc.

Fittings, Pipe.....Company offers a line of ductile cast iron pipe fittings, including "K" pipe lock couplings, screwed and flanged fittings, and companion flanges. Details in Catalog No. 1.
376DD Kuhns Brothers Co.

Fittings, Stainless & Alloy Steel.....When heat or corrosion add to your pressure piping problems, protect pipe joints with forged stainless or alloy steel fittings. Full details in Bulletin S-1-55.
376EE Watson-Stillman Fittings.

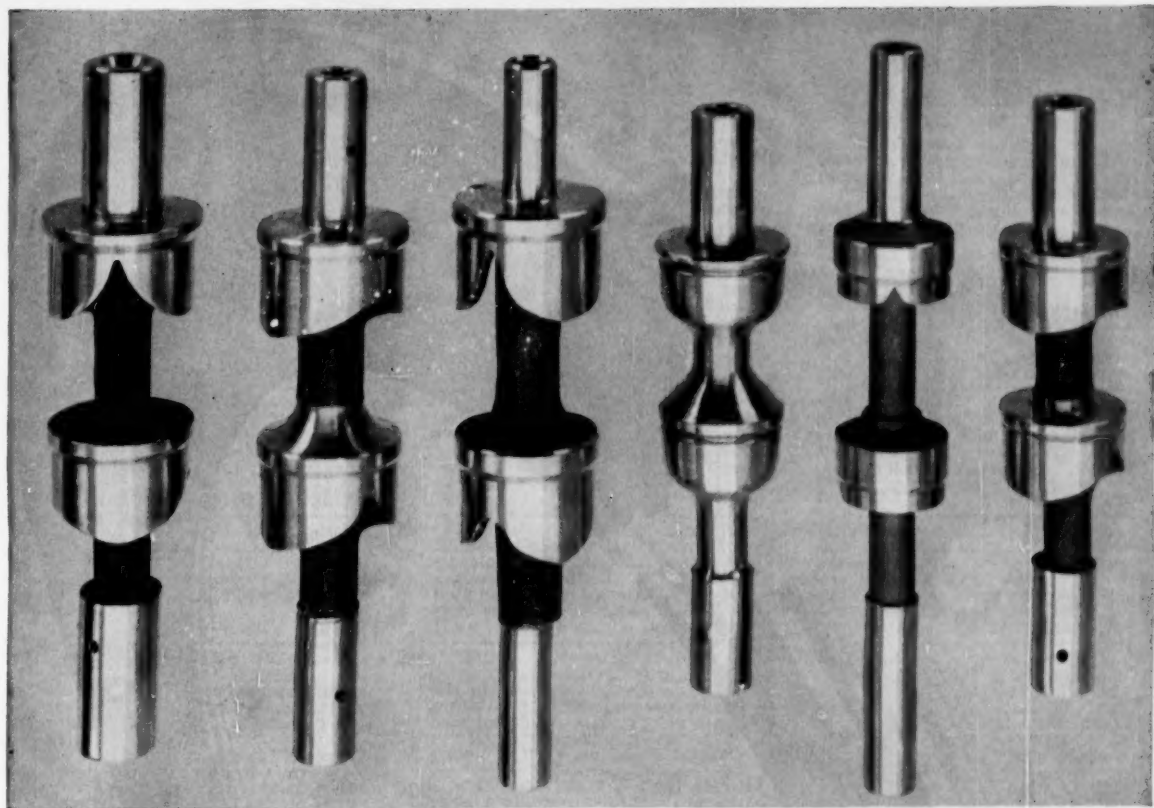
Fittings, Stainless - Steel.....How Speedline fittings offer a different concept in stainless-steel piping is told in a 24-page bulletin. Contains all the information needed to select and apply fittings.
376FF Horace T. Potts Co.

Fittings, Stainless Steel.....Stainless steel fittings will assure you of long, trouble-free service in tough piping applications, will reduce down-time and cut maintenance costs. Bulletin S-3-55.
376GG Watson-Stillman Fittings.

Fittings, Stainless Steel.....Speedline fittings simplify pipeline design. Details of the greater design flexibility possible with Speedline fittings... at lower cost... available in brochure.
76-7 *Horace T. Potts Co.

Fittings, Stainless Steel.....W-S stainless steel fittings, types 304 and 316, resist a wide variety of corrosive services in petroleum, chemical, food and other process industries. Bul. S-3-55.
387 *H. K. Porter Co.

* From advertisement, this issue



Inner secrets of inner valves

FACTS EVERY CONTROL VALVE USER SHOULD KNOW

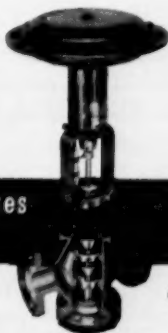
This is a rare photograph . . . presented in a completely unretouched form. It shows the inner valve of leading makes of diaphragm control valves. The inner valve determines the control result.

The most amazing fact is the size . . . all are listed as two inch valves. All are high lift. But compare them.

Note the KIELEY & MUELLER inner valve at the far left. It equals the others on every point of con-

sideration; exceeds on many. Look at the diameter across the skirt . . . that's one reason for the remarkable C_v of K&M valves. Look at skirt length; the solid, not fabricated, design. Measure the rugged guide posts and the large column. Examine the machining and the super-finishing.

It's no wonder . . . K&M is the valve that likes to be compared. It's a better valve and a better value by every measure of comparison.



FOR THE COMPLETE FACTS . . . write for the K&M Valve Engineering Data Catalog, Bulletin CV53.

diaphragm control valves

K&M

Our 78th Year

KIELEY & MUELLER, INCORPORATED

Oldest Pressure and Level Control Valve Manufacturer
64 Genung Street, Middletown, New York



**If it's BLUE-dyed Asbestos
YOU CAN BE SURE IT'S FLEXITALLIC**

In every asbestos-filled Flexitallic Gasket, the blue dye in the Canadian asbestos filler provides positive product identification. When you see Flexitallic Blue, you can be sure it's a genuine Flexitallic Spiral-Wound Gasket . . .

- the original spiral-wound gasket made exclusively by this Company since 1912.
- constructed to meet specific conditions of thermal and mechanical shock, vibration, weaving and other joint stresses.

- flexible and resilient, self-adjusting to changes in operating conditions—affording greater safety, dependability, and long service life.

In every field of high-pressure seal, look for Flexitallic Blue. It's for your protection.

FLEXITALLIC GASKET CO.
8th & Bailey Sts., Camden 2, N.J.
Representatives in principal cities

Flexitallic
SPIRAL-WOUND GASKETS

FOR PIPE FLANGES, PRESSURE VESSELS AND PROCESS EQUIPMENT

* Flexitallic is a registered trade name. No one else can make a Flexitallic Gasket. Look for *Flexitallic Blue* — it's our exclusive blue-dyed Canadian asbestos filler.

Literature Available

Fittings, Tube—
Joints, Expansion, Rubber

Fittings, Tube......52 p. Catalog No. 4310 presents full line of "triple-lok" tube fittings in brass, steel, stainless steel and aluminum. All shapes including swivel nut and straight threaded with o-rings.
379A Parker Appliance Co.

Fittings, Vacuum Conveyor......Vacu-Flo fittings and tubing for vacuum systems and lines conveying liquids, gases and solids provide maximum load capacity and top performance. 6-page bulletin.
379B H-P Products.

Flanges......Long Life and precision workmanship are assured in Phoenix forged steel flanges. Meet full A. S. A. specifications—carbon steel and alloy. Write for 36 p. reference booklet.
379C Phoenix Mfg Co.

Flanges, Insert......Sifco stainless insert flanges offer flexibility of installation, lower maintenance, fewer replacements. They eliminate the problem of both hole alignment. Request catalog.
379D Stainless Insert Flange Co.

Flanges, Taper Face......Light weight tapered face permit seals with reduced bolt-loading on valve or pump flanges. Lighter neck speeds up welding to pipe. Taper Face Flanges Bul.
379E Tube Turns.

Glands, Thermocouple......Multiple wire thermocouple glands provide entrance into pressure vessels of 1, 2, 4, 6 or 8 wires by sealing bare wires at pressures from full vacuum to 20,000 psi. Cat. 1556.
379F Cronax Corp.

Guide, Valve Selection......Now available, revised edition of "Guide for Selecting Valves, Boiler Mountings, Lubricating Devices." For easy reference, 24 pages of tables and data are fully indexed.
379G Lunkenheimer Co.

Hangers, Pipe......Company's trapeze functional spring hangers, with patented internal swivel action, support piping. Experienced engineers design hangers for your requirements. Catalog 54.
379H Blaw-Knox Co.

Hose Clamps......In addition to compiling standard hose clamps, grooved hose fittings, special tools and replacement parts, Form Cat. 300RG-56 serves also as an instruction and training manual.
379I Punch-Lok Co.

Hose, "Dacron"-Jacketed......Industrial hose jacketed with 100% "Dacron" polyester fiber is stronger, lighter, easier to handle, and much more flexible than previous types. Manufacturers' names in booklet.
379J E. I. du Pont de Nemours.

Hose, Flexible......Teflon flexible hose assemblies described in Bulletin TF-100 have been built for economy and long life in fuel, oil, chemical, oxygen, hydraulic lines and other uses.
379K American Brass Co.

Hose, Flexible......Bulletin 70 gives price lists and complete information on flexible hose and duct products. Examples of industrial applications; tabled for easy reference.
379L Flexaust Co.

Hose, Flexible Metal......16-page brochure describes applications and uses of flexible metal hose and bellows. Detailed drawings and pictures make individual applications easy to specify.
379M Flexonics Corp.

Hose, Flexible Metal......Catalog G-560 simplifies selection and ordering of flexible metal hose and tubing. Suggestions on installation, bend diameters. Brass, bronze, stainless steel, etc.
395 *American Brass Co.

Hose, Hydraulic......Company offers Rubber Covered Hydraulic Hose Selector, containing S.A.E. and industry specifications on hydraulic hose. Used to determine proper Wiretex Rubber Covered Hose.
379O Republic Rubber Div.

Hose, Metal......Catalog 1D-100A, 10 p., covers company's range of flexible metal hose with recommended pressures, temperatures and specific uses for which each type is suited. Photos show various types.
379P Universal Metal Hose Co.

Hose, Metal, Flexible......Produced in various alloys of stainless steel—in monel, bronze, and carbon steel. Ideal for use with high temperature and high pressure corrosive gases. Bulletin 21-A.
379Q Atlantic Metal Hose Co.

Hose, Metal, Flexible......Penflex is rugged hose with all the flexibility required, plus the toughness and durability of metal. It defies rough abuse, abrasion and crushing. "Flexineering At Work."
379R Pa. Flexible Metallic Tubing.

Hose, Metal, Flexible......Engineered and manufactured to absorb the costly beating your piping system is now taking, efficiently and economically. Company makes details available in Bulletin IND 4.
379S Packless Metal Hose.

Hose, Teflon......R/M flexible, thin-wall "Teflon" hose is recommended for extremes of corrosion and temperature in critical fluid services. Wide range of diameters and wall thicknesses. Bul. 6700.
379T Raybestos-Manhattan Inc.

Hose, Teflon, Flexible......Heat-resistant, corrosion-proof, lightweight Teflon flexible hose absorbs vibration and movement, simplifies off-set connections and installations in cramped spaces. Bul. TF-100.
379U American Metal Hose Div.

Hose & Tubing, Metal, Flexible......Catalog simplifies selection and ordering of metal hose and tubing for industrial equipment and maintenance applications. Complete details available in Catalog G-560.
379V American Metal Hose Div.

Joints, Ball, Flexible......Advantages: no metal-to-metal contact between moving parts; chemically inert gaskets; pressure safe; fire proof; choice of styles. Further details in Catalog 215B.
379W Barco Mfg. Co.

Joints, Ball, Swing & Strut......Interesting illustrated bulletin shows petrochemical and petroleum industry applications for Barco ball, swing, and strut joints. For details, request Bulletin 28.
379X Barco Mfg. Co.

Joints & Couplings......For maximum safety specify R/M "Teflon" Expansion Joints and Flexible Couplings in your critical fluid lines. Details contained in company's booklet on "Teflon" Accessories.
379Y Raybestos-Manhattan.

Joints & Couplings......Teflon expansion joints and flexible couplings absorb shock, vibration, thermal expansion and contraction. Connect unlike piping ends and nozzles. Details in Bulletin EJ-1155.
379Z U. S. Gasket Co.

Joints, Expansion......Adco expansion joints are more efficient than pipe bends due to less heat loss, less pressure drop, less space. In addition, these joints cost less. Bulletins 54-10PR and 35-51PR.
379AA Amer. District Steam Div.

Joints, Expansion......Free-flexing and controlled-flexing; dual and multiple types; balanced joints and other special designs; all in stainless steel, monel, and other workable alloys. See 28 p. Design Guide.
379BB Flexonics Corp.

Joints, Expansion......Rubber, neoprene and Teflon-lined expansion joints are fully explained in a recent bulletin that shows construction, sizes and uses. Covers characteristics and limitations of 7 styles.
379CC Garlock Packing Co.

Joints, Expansion......Complete line of expansion joints in rubber, neoprene, and Teflon eliminate noise, vibration, and flange breakage in piping. Available for handling any liquid or gas. Folder AD-137.
379DD Garlock Packing Co.

Joint, Expansion......Bulletin EJ-1915 describes the Yarway type W Gun-Pakt expansion joint which features an improved one-piece design of body and gland. Data also for figuring pipeline expansion.
379EE Yarnall-Waring Co.

Joints, Expansion......72 p. catalog covers the design, manufacture and application of the company's line of packless corrugated expansion joints, including three new types. Request Catalog #56.
379FF Zallea Bros.

Joints, Expansion......For chemical resistant piping, Teflon expansion joints should be used to absorb shock, vibration, expansion and contraction. Send for helpful Catalog AD-137.
462-3b *Garlock Packing Co.

Joints, Expansion & Bellows......Solar-Flex bellows and expansion joints are engineered for long periods of rugged service under severe temperature extremes, hot and cold. Request latest catalog.
379HH Solar Aircraft Co.

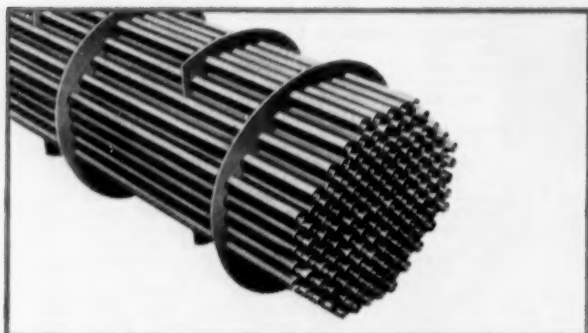
Joints, Expansion, Rubber......Garlock rubber expansion joints are made from high-grade rubber, combined with piles of sturdy cotton duck and reinforced with steel rings. Full details in Folder AD-137.
379II U. S. Gasket Co.

* From advertisement, this issue

B&W Steel Tubular Products

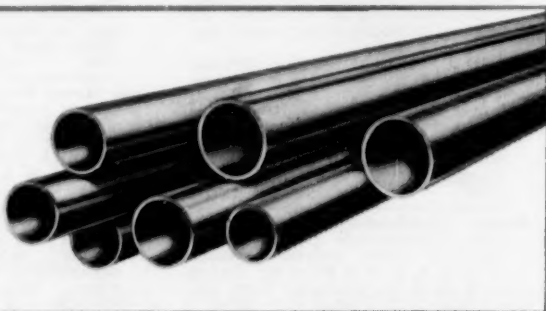
for economical, trouble-free service in chemical plant equipment and piping systems

- *pressure tubing and pipe — seamless or welded*
- *seamless welding fittings and forged steel flanges*
- *wide selection of analyses — carbon, alloy, stainless steels, titanium metals*



Pressure Tubing for Heat-Transfer Equipment —Carefully selected as to analysis, provides maximum heat-transfer efficiency, high strength at elevated temperatures, excellent corrosion resistance and freedom from contamination. Dimensional uniformity permits easy, quick insertion through tube sheets and baffles, without jamming or distortion, and simplifies "rolling in" operation. Readily bent into hair-pin turns, tight spiral or helical coils, and can be welded by conventional techniques.

Pressure Tubing and Pipe for Plant Piping Systems —Chosen carefully from wide available range of analyses, satisfies requirements for strength at extremely high pressures or temperatures, or in subzero temperature service, provides maximum corrosion resistance and freedom from product contamination. Easily fabricated by bending, welding, and various methods of joining.



Welding Fittings and Flanges — Combine with B&W Pressure Tubing and Pipe to produce complete plant piping systems which have uniformly high strength at increased temperature and pressures, or at subzero temperatures, with excellent corrosion and contamination resistance; easily insulated, fit well in confined spaces.

Mr. Tubes Can Aid You in Tubular Products Selection



Mr. Tubes, your link to B&W, represents the B&W sales force and distributors, backed up by B&W application engineers and metallurgists. Mr. Tubes has a wealth of experience in finding the *right* tubing, pipe and fittings for chemical industry applications, and will gladly apply it to your own particular applications. Call on Mr. Tubes today! The Babcock & Wilcox Company, Tubular Products Division, Beaver Falls, Pa.



TA-6082-A

Literature Available

Joints, Expansion, Rubber—
Pipe & Fittings, Nickels—Lined

Joints, Expansion Rubber.....U. S. Rubber Expansion Joints are resilient, do not become brittle, absorb axial and lateral deflection, insulate against vibration and pump noise. Request catalog.
381A U. S. Rubber Co.

Joints, Pipe Ball.....How to handle thermal expansion and contraction in piping with Barco ball joints is outline in a 6-page Bulletin 31. Illustrations cover four basic motion principles.
381B Barco Mfg. Co.

Joints, Swing.....OPW ball bearing swing joints provide full, unrestricted flow, effortless movement, greater load carrying capacity for safely handling liquids. Catalog F-8 provides full data.
381C Jordan Corp.

Mountings, Cylinder.....Mountings are simple and provide protection against breakage due to misalignment. Bulletin illustrates use of these mountings and gives dimensions. Bulletin No. 76.
381D Hanna Engrg. Wks.

Nozzles.....Describe company's line of nozzles for: oil atomizing; humidifying; air washing; desuperheating; spray ponds; milk powdering; acid chambers; concrete curing; etc. Catalogs 6-A and 6-C.
381E Monarch Mfg. Wks.

Nozzles.....Company offers information on a compact pneumatic atomizing nozzle, for applications where space is valuable. Supplied in wide range of capacities in choice of sprays. Data Sheet 6552.
381F Spraying Systems Co.

Nozzles.....A nozzle with a pull-out-vane to simplify task of cleaning a spray nozzle mounted in hard-to-get-at places. Supplied in a range of sizes and capacities. "Full-jet Nozzle" Data sheet 7071.
381G Spraying Systems Co.

Nozzles, Agitating.....Bulletin discusses capacities and characteristics of Pfaudler Agitating Nozzles along with new data on turbulent flow in reactor jackets. Request Bulletin 950.
381H Pfaudler Co.

Nozzles, Spray.....Monarch's advance design reduces clogging and guarantees dependable applications to wax fruits, rinse vegetables, dry eggs, powder milk, wash filter cake, etc. Catalog 1.
381I Monarch Mfg. Works.

Nozzles, Spray.....Company makes available on request a completely detailed Catalog which provides valuable data on Spraco Nozzle line. Information on full cone, flat spray & hollow cone types.
381J Spray Engrg. Co.

Nozzles, Spray.....Company provides a 48 p. industrial catalog with full data on thousands of standard and special nozzles—for every type of spraying. Also information on related equipment. Catalog No. 24.
381K Spraying Systems Co.

Nozzles, Spray.....Interesting group of full cone spray nozzles provide extremely small capacities and atomization using hydraulic pressure only, according to Data Sheet 4517 now available.
381L Spraying Systems Co.

Nozzles, Spray.....WhirlJet spray nozzle for installation on walls or manifolds may be mounted in a straight line if desired, to simplify drilling and tapping holes in manifold or wall. Data Sheet 6666.
381M Spraying Systems Co.

Nozzles, Spray.....Capacity of 2-U-Veejet nozzle ranges from 73 GPM at 15 psi to 330 GPM at 300 psi. Supplied in choice of two types of spray angles. Details available in Data Sheet 6868 on request.
381N

Nozzles, Spray.....For spraying, washing, rinsing and cooling, Yarway spray nozzles will improve efficiency of your spray equipment. No internal vanes to clog or hinder flow. See Bulletin N-618.
381O Yarnall-Waring Co.

Nozzles, Spray.....Full cone, hollow cone, flat spray—spraco has the most complete line of spray nozzles available anywhere, in stock. Bronze, cast iron and stainless steel. Nozzle Catalog.
381P *Spray Eng. Co.

Nozzles, Spray.....An inventory of over 12,000 types of spray nozzles is maintained for prompt delivery. Full cone, hollow cone, flat spray, square spray, straight steam and others. Cat. 24.
381Q *Spraying Systems Co.

Outlet Connection.....Bulletin CP-1-57 reports details on a new line of easy-to-install branch outlet connections for pipelines, tanks and pressure vessels. The Couplet functions as universal connection.
381R H. K. Porter Co.

Pipe.....Bulletin describes flexible tubing which rolls up compactly for carrying & laying out. Made of polyethylene, it resists acids, alkalis, salt water & liquid fertilizers. Bulletin #9008.
381S Bakelite Co.

Pipe.....Request your free copy of this pipe fabrication team bulletin, called "How Piping is Fabricated." Tells how Flori fabricates its pipe and how they sell this pipe as a team.
381T Flori Pipe Co.

Pipe.....8 p. illustrated bulletin describes line of High Impact Rigid Koroseal pipe, fittings & valves. Explains installation, reviews applications & gives physical properties. Bulletin #10050.
381U B. F. Goodrich Co.

Pipe, Aluminum.....Brochure "Reynolds Aluminum Pipe for Tank and Vessel Hook-up" contains handy reference tables, scheduling sizes and specifications of pipe stocked by leading distributors.
381V Reynolds Metals Co.

Pipe, Aluminum.....Reynolds aluminum pipe features: lower cost, light weight, strong-seamless, non-rusting, fast installation, flexibility, standard sizes—highest quality. Request Bulletin C3B-10-2560.
381W Reynolds Metals Co.

Pipe Benders.....Greenlee No. 884 hydraulic pipe bender bends pipe or conduit 90 degrees with one ram stroke. Handles ½-in. to 2-in. pipe or conduit. Aluminum alloy construction. Bulletin E-217.
381X Greenlee Tool Co.

Pipe, Channel.....Chemi-Drain channel pipe channels hot sulphuric dilute for processing; safely drains corrosive waste chemicals. Unaffected by acids or other corrosives. Full details in 4 p. bulletin.
381Y Logan Clay Products Co.

Pipe, Clay.....Applications and structural features are set forth in a brochure. This chemically inert pipe boasts a self-locking joint which speeds installation. Send for your copy.
381Z Robinson Clay Product Co.

Pipe, Corrosion Resistant.....Bulletin gives dimensions, weights and bursting pressures for Schedule 40 and 80 PVC pipe. Available in unplasticized and high-impact PVC. Installation instructions.
381AA H. N. Hartwell & Son.

Pipe & Fittings.....Latest technical information on pressure-rated plastic pipe and fittings is presented in 8 p. booklet. Includes complete tables on pressure drop, pressure-temperature ratings.
381BB Crane Co.

Pipe & Fittings.....Non-metallic, rigid unplasticized polyvinyl chloride pipe and fittings are described in Bulletin PVC 1200. Light in weight, easy to install with screwed or welded fittings.
381CC Luzerne Rubber Co.

Pipe & Fittings.....Luzerne PVC pipe and fittings are light in weight, easy to install with either screwed fittings or welded socket fittings, and economical. Immediate delivery. Details in Bulletin PF-1100.
381DD Luzerne Rubber Co.

Pipe & Fittings.....For corrosion-resistant piping. Impervious graphite pipe & fittings readily installed, long lasting, easily maintained, unaffected by most corrosive fluids. Catalog Section No. 8-7000.
381EE National Carbon Co.

Pipe & Fittings, Glass.....Glass Pipe & Fittings for full-scale production operations. Strengthened by end-tempering & feature corrosion-resistance, non-contamination, etc. Catalogs EA-1 & EA-3.
381FF Corning Glass Wks.

Pipe & Fittings, Jacketed.....Bulletin discusses jacketed fittings for maintaining uniform temperature (hot or cold), jacketed spring loaded plug valves, jacketed welded steel fittings, etc. Bulletin J-56.
381GG Hetherington & Berner.

Pipe & Fittings, Jacketed.....Catalog on line of steam jacketed pipe and fittings, either screwed or welded ends, has been revised to include additional sizes with more complete information.
381HH Red Jacket Co.

Pipe & Fittings, Nickel-Lined.....8 p. brochure features fabrication techniques and technical information on applications of Bart Lector-Clad nickel-lined pipe and fittings. Copy sent on request.
381II Bart Mfg. Corp.

* From advertisement, this issue

New Pipe, Fittings & Valves

1957 INVENTORY

Literature Available

Pipe & Fittings, Seamless Steel—
Process Pipe, Aluminum

Pipe & Fittings, Seamless Steel, Nickel-Plated......Ductile, adherent and pore-free electroplated nickel surface will withstand such materials as: chlorinated organics, phenol, caustic soda, etc. Data.
382A Bart Mfg. Corp.

Pipe & Fittings, Tin-lined......Developed to protect distilled water; a complete line of tin-lined pipe, fittings, line valves, faucets and accessories is offered. Ask for copy of Bulletin No. 139.
382B Barnstead Still & Demineral.

Pipe Fittings, Packaged......Bulletin PF-1-157 presents new packaging concept for steel pipe fittings. Tells quantities of each type packaged, and dimensions and weight of the cartons.
382C H. K. Porter Co.

Pipe-Fittings-Valves......Engineering catalog gives complete data about the Van-Cor line of unplasticized polyvinyl chloride pipe, fittings and valves. Covers both types of Van-Cor. Request a copy.
382D Colonial Plastics Mfg. Co.

Pipe, Hard Rubber......Heat-resistant nitrile hard rubber pipe handles inorganics at 250-275 deg. F. . . also resists wide range of organic chemicals at room temperature. For details see Bulletin 96-A.
382E American Hard Rubber Co.

Pipe Installation, Glass......Pipe is easy to install & low in cost compared with other corrosion-resistant materials. Available in 6 standard sizes from 1- to 6-inch. I.D. inclusive. Manual PE-3.
382F Corning Glass Wks.

Pipe, Plastic......General-purpose moderately priced rubber-plastic pipe handles most common chemicals to 170 F. except few strong acids & organic solvents. Tough, odorless, tasteless. Bul. 80.
382G American Hard Rubber Co.

Pipe, Plastic......Ace Revivor is a rigid threaded plastic pipe with good aging and high impact strength. Not affected by most inorganic acids and alkalis. Company offers full details in Bulletin CE-56.
382H American Hard Rubber Co.

Pipe, Plastic......Complete line of plastic pipe, tubing and fitting is described in a 16 p. catalog. Complete data and specifications for three grades of polyethylene pipe are included.
382I Franklin Plastics, Inc.

Pipe, Plastic......Catalog 401 covers development, application, installation and specifications of Orangeburg SP Plastic pipe made from a recently developed superior type of polyethylene. Request a copy.
382J Orangeburg Mfg. Co.

Pipe, Plastic......Rigid high impact plastic pipe and fittings catalog is available. Covers applications, chemical resistance ratings, electrical properties, physical properties and working pressures.
382K Triangle Conduit & Cable Co.

Pipe, Plastic......Polyvinyl Chloride is the unparalleled material for plastic pipe. It's a high quality unplasticized rigid pipe designed to do a better job than any other material. Details in Bulletin 24.
382L U. S. Steel Corp.

Pipe, Polyethylene, Flexible......Bulletin includes applications for Supplex pipe, sizes of standard pipe and fittings, installation instructions, technical properties, etc. Request a copy of Bulletin CE-57.
382M American Hard Rubber Co.

Pipe, Polyvinyl Chloride......Describes Ryertex-Omicron PVC rigid type unplasticized pipe. Gives engineering data on pipe & lists over 200 chemicals it will convey without attack. Technical Bulletin 80-3.
382N Joseph T. Ryerson & Son.

Pipe, Pressure......"How to Install Johns-Manville Transite Pressure Pipe for Overhead Industrial Water and Process Lines" is the title of a 48 p. guide issued by Johns-Manville. Request copy.
382O Johns-Manville.

Pipe, Reinforced Resin......Design, construction and typical applications of Fluoroflex-T pipe (Teflon resin and glass fiber) are discussed in a 4-page bulletin issued recently by the manufacturer.
382P Resistoflex Corp.

Pipe, Rigid......Ace Parlan odorless, tasteless, rigid polyethylene pipe stays tough at sub-zero temperatures. Best chemical resistance of any plastic at room temperature. Request Bulletin 351.
382Q American Hard Rubber Co.

Pipe, Rigid......Koroseal rigid pipe is exceptionally easy to install. Can be threaded with standard pipe threading equipment, quickly joined to Koroseal valves and fittings. Details available in booklet.
382R B. F. Goodrich Industrial.

Pipe, Saran Lined......Saran lined pipe, fittings and valves cut corrosion costs . . . can be cut in the field with available pipe fitter's tools. Liquid never touches metal in saran lined pipe. Request details.
382S Saran Lined Pipe Co.

Pipe & Sheets, Polyvinyl Chloride......Koroseal polyvinyl chloride material comes in pipe, pipe fittings, rods, sheets; it is inert, easily cleaned, needs no painting. Free booklet on pipe & sheets.
382T B. F. Goodrich Ind. Prod. Co.

Pipe, Stainless, High Alloy......48 p. manual describes stainless steel and high alloy pipe and tubing ranging in size from 1/4 in. to 40 in. in outside diameter. Tables supply hardness, conversion, other data.
382U Trent Tube Co.

Pipe, Stainless Steel......Company states that stainless steel pipe and tubing is the cheapest kind of down-time insurance; it absorbs blows without damage, protects against sudden leaks. Catalog.
382V Damascus Tube Co.

Pipe, Steam Traced......Report savings of up to 30% in labor cost, plus important reductions in material and insulation costs. Information on applications and methods of using Unitrace in Bul. AD-418.
382W Aluminum Co. of America.

Pipe, Steel......Folder TDC-138 contains two tables. One lists dimensional data for 16 pipe sizes for six weight schedules. Other table covers ASTM, ASME specs. for carbon, alloy, stainless pipe.
382X Babcock & Wilcox Co.

Pipe, Steel, Teflon Lined......Wherever corrosion or electrical resistance is a factor, company is offering Teflon lined schedule 80 steel pipe in sizes of 1, 1 1/2, 2 and 4 in. Request Bulletin T-100.
382Y Haveg Industries.

Pipe Tool......Through the large, clear illustrations and explanatory text in a 24-page book you can learn how easily tube or pipe can be notched to make joints for welding with the Wallace Notcher.
382Z Wallace Supplies Mfg. Co.

Pipe-Tubes-Fittings......Folder on B&W Croloy 5 includes technical information on pipe, tubes and welding fittings. Company makes further information available in Folder TDC-146A on request.
382AA Babcock & Wilcox Co.

Pipe & Tubing......If you have pipe-line corrosion problems, a 4-page folder tells how steel and plastic have been combined in the X-Tru-Coat pipe and tubing to meet severe corrosive conditions.
382BB Republic Steel Corp.

Pipe & Tubing......Illustrated 58 p. handbook packed with data on stainless and high alloy tubing, including analysis and conversion tables, corrosion characteristics, weights, etc.
382CC Trent Tube Co.

Pipe & Tubing, Non-Metallic......4 p. bulletin, "Fibercast Line Pipe and Well Tubing" describes strong, corrosion-resistant pipe made from thermosetting reinforced epoxy resins.
382DD Fibercast Corp.

Pipe, Valves & Fittings......Engineering Memorandum covers polyvinyl chloride (PVC) pipe, valves and fittings. Details corrosion resistance, general properties, fabricating characteristics, etc. Memo 13.
382EE Peter A. Frasse & Co.

Pipe, Wrought Iron......Booklet, "Wrought Iron Pipe for Modern Buildings," with sections on wrought iron's resistance to corrosion and fatigue stresses, weldability, forming and threading.
382FF A. M. Byers Co.

Piping Identification......"How to Identify Your Piping System" contains specifications laid down and approved by the ASA in conjunction with the National Safety Council and the ASME.
382GG Rust-Oleum Corp.

Piping Systems......Blaw-Knox designs and erects pre-fabricated piping systems to meet individual requirements. Modern shop facilities, new method of stress calculation. Bul. 2443.
382HH Blaw-Knox Co.

Process Pipe, Aluminum......Booklets, "Corrosion Keys for Aluminum" and "Aluminum Process Pipe" explain advantages of aluminum pipe: low cost, resistance to corrosion, non-sparking, long life.
382II Reynolds Metals Co.

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Literature Available

Shafting—
Tubing, Stainless Steel

Reducers.....Chemiseal Reducers No. 3-CRS are one piece assemblies, designed to connect unlike pipe sizes with minimum length requirements. Standard sizes from 1" to 6". Ask for Bulletin 3-CRS.
384A U. S. Gasket Co.

Shafting.....Engineering Bulletin illustrates typical installations using flexible shafting and gives information on all sizes of shafting for power drive or remote control applications. Bulletin #570.
384B Stow Mfg. Co.

Sockets.....Offer several types of sockets: standard length, bolt clearance length, magnetic, Flex-sockets, power, power-impact and thin-wall. Catalog of industrial wrenches and hand tools.
384C Snap-on Tools Corp.

Speedvalves & Fittings.....Easy, fast tubing assemblies to 10,000 psi are now available with Autoclave Speedvalves and Fittings. Quickly installed in three steps. Bulletin 256 catalogs the entire line.
384D Autoclave Engineers.

Thermopiles.....Conversion of infrared energy into electrical energy suitable for amplification and measurement by means of thermopiles is described in brochure. Used in temperature control devices.
384E Jarrell-Ash Co.

Topworks.....Super 70 Series Topworks give fast response. Four sizes are available in both direct and reverse acting types. Information on valve bodies of Super 70 Series line in Catalog 70-11.
384F Black, Sivalis & Bryson.

Traps, Compressed Air and Gas.....Unique compressed air and gas trap described in Bulletin 501. Trap combines magnetic, pneumatic and automatic action. Pressure range of trap is 10 to 200 psig.
384G Hankison Corp.

Tubes.....More than 101 Duplex combinations available—each designed to lick a particular combination of corrosive conditions. Company issues the Duplex Tube Handbook—Tech. Bulletin 1954.
384H Bridgeport Brass Co.

Tubes, Ceramic Protecting.....Bulletin illustrates and describes Serv-Rite line of ceramic protecting tubes. Lists various sizes available in different materials and prices. Send for Bulletin 1000-56.
384I Claud S. Gordon Co.

Tubes, Integrally Finned.....Booklet covers numerous applications where Trufin (the integrally finned tube) is used effectively and economically. Request your copy of "Opportunities Unlimited."
384J Wolverine Tube Div.

Tubing.....Catalog on cold drawn mechanical, capillary, hypodermic, nickel and nickel alloy tubing. Data on specifications, standard tolerances, physical properties and relative workability.
384K J. Bishop & Co.

Tubing.....Cardboard data chart fully explains tolerances for steel tubing and pipe. Gives permissible variations in O.D., I.D., wall, ovality and straightness. Covers both seamless and welded tubing.
384L Peter A. Frasse & Co.

Tubing....."Installation Guide for Plastic-coated Raceways" gives installation details for maximum efficiency from plastic-coated rigid steel conduit & electrical metallic tubing. Booklet 180166.
384M General Electric Co.

Tubing....."12 Features of the New Look in Laminated Tubing" describes the "Tuff-Tube" laminated fiber-glass-epoxy tubing with properties not previously available in laminates. Electrical properties.
384N Lamtex Industries.

Tubing....."Porous Fiberglass-Epoxy Tubing" describes company's form of fiberglass-epoxy tubing, known as "Poro-Tube". Completely describes features and gives suggested applications.
384O Lamtex Industries.

Tubing.....Bulletin lists 121 metals and alloys from which the firm produces its standard and special small diameter tubing. Company makes further details available in Data Memorandum No. 1.
384P Superior Tube Co.

Tubing.....This flexible, plastic pipe—Tygon Tubing—in sizes up to 3" ID, is used extensively as temporary or permanent acid and alkali lines, etc. For information, request Bulletin T-97.
384Q U. S. Stoneware Co.

Tubing, Alloy Steel.....Folder includes data on carburizing and thermal treatments, critical points, mechanical properties and suggestions on welding and machining of these steels. Folder TDC-184.
384R Babcock & Wilcox Co.

Tubing, Armored.....Heavily armored construction of specially cabled copper tubes may be laid in a deep trench, protected by its lead sheath, asphalted jute, and other armor. Bulletin 356-H.
384S Crescent Insulated Wire.

Tubing, Carbon Steel.....Furnishes data on mechanical and physical properties of seamless and welded carbon steel pressure tubing and information on fabricating operations. Folder TDC-142A.
384T Babcock & Wilcox Co.

Tubing, Condenser & Exchanger.....Tubes for process condensers and exchangers handling heavy concentrations of hydrogen: arsenical admiralty, arsenical aluminum brass, arsenical muntz, duplex.
384U Bridgeport Brass Co.



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1957 INVENTORY

Tubing & Fittings......Complete lines of stainless steel tubing and fittings. Also, PVC tubing. For more information about polyvinyl chloride for corrosive services write for Bul. G-443.
423h *Cherry-Burrell Corp.

Tubing, Flexible......Hundreds of applications in the steam and Diesel power fields are filled by Penflex flexible tubing. For complete information on product line, request copy of "Flexineering" booklet.
385A Pa. Flexible Metallic Tubing.

Tubing, Heat Exchanger & Condenser.....B & W heat exchanger and condenser tubing checks corrosion, prevents product contamination. Made in a wide variety of grades and thicknesses. Bulletin 329.
385B Babcock & Wilson Co.

Tubing, Heat Exchanger & Condenser.....Electric-resistance-welded carbon steel heat exchanger and condenser tubing widely used in process industries, including petroleum refining, etc. Bulletin 412.
385C Babcock & Wilcox Co.

Tubing, Laminated......Data sheet describes "Poro-Tube", a laminated tubing with exclusive feature of porous wall construction. Complete technical description is given. Technical Data 221.
385D Lamtex Industries.

Tubing, Nickel & Nickel Alloy.....Handbook information on nickel and nickel alloys for use by designers, production engineers and purchasing executives. Bulletin 12 gives details.
385E Superior Tube Co.

Tubing & Pipe, Stainless.....Carpenter stainless tubing & pipe have ability to stand up under increased temperatures & thruput, with cost reductions in material, labor, etc. "Selecting & Buying Guide."
385F Carpenter Steel Co.

Tubing & Pipe, Stainless Steel.....Strict adherence to chemistry requirements; full relief of cold work stresses; complete carbide dissolution; dimensional accuracy; etc. See product booklet.
385G Damascus Tube Co.

Tubing, Plastic.....Excellent chemical-resistance, all-purpose flexible plastic tubing. Sparkling clear, easy to clean, odorless, non-toxic, can be steam-sterilized. For details, request Bulletin No. 66.
385H American Hard Rubber Co.

Tubing, Polyamide.....Outstanding characteristics and installation advantages of flexible polyamide tubing are set forth in a 4-page bulletin that also includes instructions on installing.
385I Polymer Corp. of Penna.

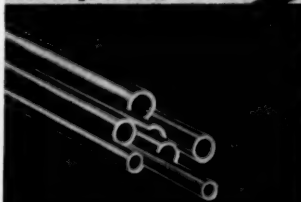
Tubing, Seamless.....Catalog covers line of small seamless tubing and small tubular components. Details such specialties as pointer tubing and metal-shielded wire. Request your copy.
385J Union Tubes.

Tubing, Stainless Steel.....Wide range of B&W seamless and welded stainless tubing and pipe. This tubing is custom-produced to meet your fabrication, production and service requirements. Bulletin 1.
385K Babcock & Wilcox.

* From advertisement, this issue



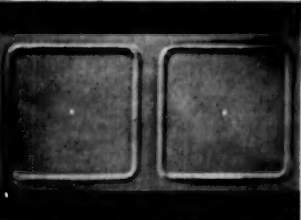
FITTINGS—A complete line of threaded and socket fittings in a full range of sizes.



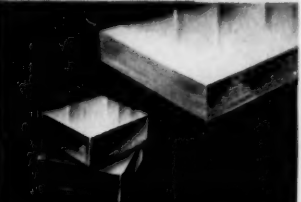
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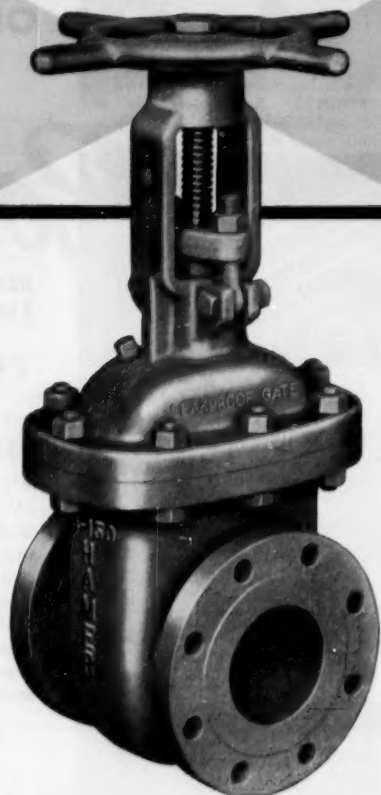
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TEFLON SEAL RINGS... Renown for their inert characteristics, these Teflon seal rings have amazing durability even under the most adverse of service conditions.

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1957 INVENTORY

Literature Available

Tubing Supports—
Valves

Tubing Supports..... 20 p. bulletin explains company's tubing and piping support system. Includes full description on Support Hangers, Sharp Bend Connectors, etc. Request Bulletin No. 656-G.
386A P-W Industries.

Tubing Supports..... Information concerning a tube fitting anchor or mounting stud, a bolt type adapter made in both the Intru-lok & Triple-lok styles; flareless & flare type fittings, respectively.
386B Parker Appliance Co.

Tubing, Teflon Thin-Walled..... Two-page bulletin, T-200, recommends use of this tubing wherever corrosion or electrical resistance is a factor. Bulletin charts diameters, wall thicknesses and tolerances, weights.
386C Haveg Industries.

Tubing, Thermocouple..... Thermocouple tubing is described in Special Memo Analysis 118. Chemical composition, mechanical and physical properties for three special analyses as they relate to tubing.
386D Superior Tube Co.

Tubing, Thin-Wall..... Literature on tubing with outer diameters from 1/8" to 2 1/2" inches and wall thicknesses of .035-inch and less. Includes applications, standard production limits, etc. Bulletin #4.
386E Superior Tube Co.

Tubing, Titanium..... Folder TDC-185 presents in detail the size range, tolerances and complete description of the mechanical, physical and working properties of the metal in tubular form.
386F Babcock & Wilcox Co.

Tubing, Titanium..... Pamphlet on titanium tubing offers information on size range and tolerances and on mechanical, physical and working properties of tubular titanium. Request information on TD 1261.
386G U. S. Industrial Chem. Co.

Tubing, Zirconium..... Physical properties of zirconium and its alloys and mechanical properties of three different tempers of these metals have been tabulated in Special Analysis Memorandum No. 112.
386H Superior Tube Co.

Tubular Products..... Company offers a 4 p. folder; cross reference between the steel, the application and the specification covering the tubular product; tubing, pipe, fittings and flanges.
386I Babcock & Wilcox Co.

Unions, Forged Steel..... After quick & easy installations, even in roughest spots, Orifice Unions will perform superbly in measuring, mixing, blending, strainer or blanking off services. Offers Catalog.
386J Clayton Mark & Co.

Unions, Forged Steel..... Bulletin presents complete dimensional and engineering data on the complete line of W-S forged steel unions for high pressure service. Details in Bulletin U-1-56.
386K Watson-Stillman Fittings Div.

1957 INVENTORY

Unions & Valves..... Catalog contains engineering data specifications and prices on hot forged steel products. Covers Catawissa perfect seal pipe unions and swing check valves. Catalog 56.

387A Catawissa Valve & Fittings.

Valve, Float..... Features of Cushioned Float Valves are explained in 16-page technical bulletin W-5. Designed to control water level accurately, valves can be either quick opening or throttling.

387B Golden-Anderson Valve.

Valve Operator, Control..... Bulletin describes Microsen Series 181 Valve Operator. Gives features, description, applications, principal of operation, models available, etc. See Bulletin RM211.

387C Manning, Maxwell & Moore.

Valve Pilot..... Spring-loaded, diaphragm-actuated hydraulic pilot valve that controls diaphragm valves on reducing or unloading service with extreme accuracy are detailed in catalog sheet.

387D Atlas Valve Co.

Valves..... 8 p. bulletin describes a line of non-lubricated, steam-jacketed and non-jacketed plug valves for process industries. Covers two versions of basic internal full-opening design.

387E Alco Products, Inc.

Valves..... Alloyco valves with renewable Teflon discs, seats, and packing come with screwed or flanged ends in a variety of styles: globe, Y, angle, swing-check, needle, plug-gate. Bulletin 11.

387F Alloy Steel Products Co.

Valves..... There's an Ace Hard rubber, rubber-lined, or plastic-lined valve for every corrosion application. Diaphragm, gate and check types. Lists chemicals handled in Bulletin CE-52. Request your copy.

387G American Hard Rubber Co.

Valves..... Company announces line of shut-off valves for the control of oil from 0 to 3000 psi and air from 0 to 2000 psi, capable of withstanding velocities up to 60 ft. per sec. Bulletins A-5 and O-5.

387H Barksdale Valves.

Valves..... Line of steel valves feature dependable operation and low maintenance cost. Gate, globe and check types handle the most severe high-pressure, high temperature services. Catalog 20.

387I Chapman Valve Mfg. Co.

Valves..... Coppus "Sentry" valves stop flow instantly or start flow instantly and automatically; when they flow, it's full flow. Company offers information on several models free of charge.

387J Coppus Engineering Corp.

Valves..... "Sentry" Models 1200, 1700, 1800, and 3000 are patented quick-closing latch type and quick-opening piston type. All are full flow valves. Full information available in Bulletin No. 500.

387K Coppus Engineering Corp.

Valves..... New folder on brass composition-disc globe, angle and lift check valves just published. Emphasizes advantages of composition disc; shows design features and gives sizes and dimensions.

387L Crane Co.

**W-S 150 lb
Stainless
Steel
Fittings**

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New production machinery and techniques developed at W-S Fittings Division now assure you of prompt deliveries on corrosion resistant stainless steel pipe fittings. Your local W-S stainless steel distributor will be glad to fill your order from his stock.

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W-S FITTINGS DIVISION

New Pipe, Fittings & Valves

Literature Available

Valves—
Valves Control

Valves..... Company offers booklet entitled "Valve Performance Facts" on its line of valves and fittings, with 32 case histories throughout industry. Line includes valves for handling chlorine.
388A Crane Co.

Valves..... Available in 18-8 SMO and Craneloy 20, gate, globe, angle and check patterns, $\frac{1}{2}$ " to 6", screwed or flanged ends. Rated 150 p.s.i. at 500° F. See Circular AD-2080.
388B Crane Co.

Valves..... Complete 244-page catalog covers broad range of types, sizes and constructions of Darling gate and check valves and fire hydrants. Includes engineering data, application tips, accessories.
388C Darling Valve & Mfg. Co.

Valves..... Features: non-sticking; no metal-to-metal contact; needs no lubrication; requires no packing; renewable sleeve & plug. Details on type F valves available. Request a copy of Bulletin V/4b.
388D Durlon Co.

Valves..... Bulletin 70, 8 p., describes a type of circulating oil system for application on presses, semi-automatic or automatic machine tools, with built-in return oil arrangements.
388E Farval Co.

Valves..... "It's Easier to Open or Close a Golden-Anderson Valve Than to Drive a Car With Power Steering" covers the reasons for this claim, and other features of valves. Bulletin G-4.
388F Golden-Anderson Valve.

Valves..... Golden-Anderson designs and manufactures valves that give dependable operation, need little maintenance, last a lifetime. Technical bulletins describing line available.
388G Golden-Anderson.

Valves..... Catalog 102 contains information on valves, driers, strainers and accessories for refrigeration, air conditioning and industrial applications. Illustrated; sizes and specifications.
388H Henry Valve Co.

Valves..... Information is provided on Jerguson 66UVG Valve for instrument piping and other general use. This valve has vertical rising ball check and replaces block valve. Drawing A-7952.
388I Jerguson Gage & Valve Co.

Valves..... 2 p. data sheets give details and features of New Jerguson Drain or Sampling Valve in sizes from $\frac{1}{4}$ " up to 2". Detailed specifications and engineering drawings. Unit No. 294.
388J Jerguson Gage & Valve Co.

Valves..... LQ600 Valves practically eliminate maintenance costs. Tests show many valves have served for five years without replacement, re-grinding, maintenance, or leakage. Literature.
388K Lunkenheimer Co.

Valves..... 28 p. Catalog P covers company's complete line of Crispin air valves used in the water, sewage and process industries. Includes complete specifications, useful charts, operating data.
388L Multiplex Mfg. Co.

Valves..... Company offers information on their "Norwalk Meter Cop", a combination back pressure & anti-suction valve, including description of how it works, etc. Request Bulletin No. 4000.
388M Norwalk Valve Co.

Valves..... Duo-Bolt gates: sizes from $\frac{1}{4}$ " to 4", screwed or flanged ends. Working pressures: 125 to 150 lbs. WSP, 200 to 225 lbs. cold WOG, non-shock. Complete details available in Form No. 1007.
388N Ohio Injector Co.

Valves..... Four Powers Flowrite valve types available to meet every requirement for accurate and dependable control. May be used with any pressure-operated sensing device. Details in Bulletin 344.
388O Powers Regulator Co.

Valves..... Equa-Safe valve manifolds automatically protect differential pressure type instruments. They stop mercury blowing, damage to differential bellows and diaphragms. Request Bulletin 56-1.
388P Republic Flow Meters Co.

Valves..... The Howell-Bunger Valve is an advanced design for easy regulation and control of water under free discharge for high and low heads. No excessive vibration or pitting. Bul. 156.
388Q S. Morgan Smith Co.

Valves..... Company offers Stockham steel gate, globe, angle and check valves and Wedgeplug non-lubricated steel plug valves in carbon and special alloy steels. Details in Catalogs SV2 and W-1-56.
388R Stockham Valves & Fittings.

Valves..... Ram type drain valve is illustrated and described in new 3 p. bulletin. Dimensional and cut-away drawings as well as photographs show various models. Valves are said to eliminate clogging.
388S Strahman Valves, Inc.

Valves..... "Greenwood specialty valves" for the oil and chemical industries—gate, check, quick-closing, sampling and drain—are illustrated and briefly described in Bulletin GV-21. Request your copy.
388T Vernon Tool Co.

Valves..... Line of general purpose valves for petroleum refineries, chemical plants, power plants. Includes gate, globe and angle type valves with hard faced seats. Supplement 1. to Cat. 24A-FC.
388U Henry Vogt Machine Co.

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389A Henry Vogt Machine Co.

Valves......Powell offers more kinds or types of valves, available in the largest variety of corrosion-resistant metals & alloys to handle practically every known corrosive fluid. Write for facts.
120 *Wm. Powell Co.

Valves......Valve handles difficult multiple-bearing lubrication under all conditions. Sealed for cleaning power shovels, cement kilns, conveyors, etc. Full details in Catalog.
317 *Stewart-Warner Corp.

Valves......A wide choice of standard valves and fittings for $\frac{1}{4}$ " to 9/16" O.D. tubing are available from stock. Bulletins 255 (4000 p.s.i.), 256 (10,000 p.s.i.) 555 (30,000 p.s.i.), 455 and 857.
143c *Autoclave Engineers.

Valves......Valves have rubber-covered interchangeable cast alloy plugs to eliminate galling and scoring; unaffected by normal cleaning solutions. For information, Bul. G-527.
423f *Cherry-Burrell Corp.

Valves, Air Release......Heavy duty air release valves for pressures up to 500 lb. are shown complete with specifications and capacities in Bulletin 856. Outstanding features assure leakproof service.
389B V. D. Anderson Co.

Valves, Back Pressure......Company offers information on the Cupola Back Pressure Valve for Cupola Air Lines, including diagrams of operation, installation, and dimensions. Bulletin 10000.
389C Norwalk Valve Co.

Valves, Bronze......Manufacturer's line of solder end and silver-braze end bronze valves in gate, globe and check designs for many varied applications are described in 4 p. folder. Bulletin DH-25.
389E American Chain & Cable Co.

Valves, Bronze & Steel......Hancock valves: steel gate valves, steel valves, bronze valves, bronze and steel flocontrol valves. Company makes details available in Catalog 200. Request your copy.
389F Manning, Maxwell & Moore.

Valves, Butterfly......Specification sheet describes a line of V-Port Butterfly Valves for precise control of air or gas. Includes sizing & specification information. Sheet RM-1000.
389G Hagan Corp.

Valves, Butterfly....Rubber lining of R-S butterfly valves protects entire valve body, gives you corrosion resistance with maximum economy. Complete line to meet your fluid control problems. Data.
389H S. Morgan Smith Co.

Valves, Cast Steel......Catalog describes patterns, casting alloys, and seating combinations, with details of the extra value design and construction features of cast steel valves. Request a copy.
389I Jenkins Bros.

Valves, Check......Fast, quiet operation means low cost operation for check valves... and that's exactly what the Chapman Tilting Disc Check Valve is designed to do. Data in Catalog No. 30-A.
389J Chapman Valve Mfg. Co.

Valves, Check......In an 8-page Bulletin, Form 300, you are shown how to combine Durabla basic check units with any standard pipe fitting to form a complete check valve. Sizes and weights of basic units.
389K Durabla Mfg. Co.

Valves, Check......Durabla Check Valves are low in cost while being high in quality. Available in seven standard line sizes, from $\frac{1}{2}$ " to 2". Complete details available on request in Bulletin CE-17.
389L Durabla Mfg. Co.

Valves, Check......Company offers an "Examination of Catalog No. 1000 'Series' Check Valves (Gas/Air Services)". Describes examination & tests, equipment, etc. Request Form No. 180.
389M Norwalk Valve Co.

Valves, Check......Norwalk disc type check valves for use in both horizontal and vertical positions. Provide positive check against reverse flow of gas or air. Bulletins 1000M and 1300M.
389N Norwalk Valve Co.

Valves, Check......Norwalk diaphragm type check valves, both horizontal and vertical, provide positive check against reverse flow of either gas or air. Rugged construction gives years of service. Bulletin 2000.
389O Norwalk Valve Co.

Valves, Check......Norwalk check valves prevent reversal of flow and accumulation of oxygen in gas carrying lines. Withstand back pressures up to 15 lbs. gauge pressure. Bul. 3000.
389P Norwalk Valve Co.

Valves, Check & Foot......Bulletin on corrosion resisting check and foot valves of Duriron and Durichlor. Corrosion resistance and mechanical characteristics of Duriron and Durichlor. Bul. V/10.
389R Duriron Co.

Valves, Control......"Meter-Mo", a pneumatic control valve, and "Little Richard", a pneumatic on-off valve, fill need for trouble-free metering and control in high-pressure installations. Cat. 406-C.
389S American Instrument Co.

Valves, Control......8 p. catalog of automatic pressure, temperature and level control valves is made available for automatic process control. Includes industrial applications. Bulletin 56C.
389T Atlas Valve Co.



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* From advertisement, this issue

Literature Available

Valves, Control—
Valves, Drain or Sampling

Valves, Control......Super 70 Series control valves offer: accurate response from topworks; greater stability through valve; self-actuating closure with float ring. Details available in Catalog 70-11.
390A Black, Sivals & Bryson.

Valves, Control......12 p. booklet gives details on construction and operating characteristics of Series LB control valves, available in sizes 1" through 4". Details available upon request in Bulletin LB-2.
390B Conoflow Corp.

Valves, Control......Specifications S-810-11 and S810-12 give details of construction on single and double seated Honeywell Series 800 diaphragm control valves. Include curves, dimensions.
390C Minneapolis-Honeywell.

Valves, Control......Two-way directional control valves for fluid power systems up to 3000 psi are described in 16 p. bulletin. Details of valve body construction and functions of plungers. Bulletin 80200.
390D Oilgear Co

Valves, Control......Three- and four-way directional control valves for fluid power systems up to 3000 psi, described in bulletin. Includes details on construction and functions. Bulletin 80300.
390E Oilgear Co.

Valves, Control......Complete line of solenoid pilot-operated control valves, built to JIC standards. Speed King valves are available in single and double solenoid types. Details in Bulletin SK-356.
390F Valvair Corp.

Valves, Control, Diaphragm......Type 30 diaphragm control valve is rugged and dependable. Available in sizes 1/2" to 12" with various styles of inner valves—reverse or direct acting. Bulletin 980.
390G A. W. Cash Co.

Valves, Control, Flow......7 models of "Quick-Dump" valves are currently available—solenoid, cam-operated, palm button, finger-tip, foot operated and two types with hand lever. Form QD-556.
390H Humphrey Prods. Div.

Valves, Corrosion Resistant......Bulletin describes corrosion resisting stainless alloy "Y" valves, types J and K. Drawings, dimensions, disc arrangement. Request your copy of Bulletin V/7a now.
390I Duriron Co.

Valves, Cut-Off......Company offers information on the Norwalk Positive Pressure Cut Off Valves, including description of operation, advantages, dimension charts & diaphragms. Bulletin 7300.
390J Norwalk Valve Co.

Valves, Diaphragm......Plastic diaphragm valves—choice of general-purpose Ace-It, Ace Parian (polyethylene) or Ace Saran. Handle most corrosive chemicals & food ingredients. Bulletins 80 & 351.
390K American Hard Rubber Co.

Valves, Diaphragm......Describes Grinnell-Saunders diaphragm valve with straight-through flow. Includes advantages, maintenance, design, selection of bodies and bonnets, etc. Fully illustrated.
390L Grinnell Co.

Valves, Diaphragm......Booklet on positive flow control shows how simplified in-line maintenance and exclusive sealing bead diaphragm puts positive control in your flow system, saves money.
390M Hills-McCanna Co.

Valves, Diaphragm......From antibiotics to the toughest acids, alkalis and salts, there is a combination of Hills-McCanna body and diaphragm materials that will suit your needs. Valve Cat. 100.
390N Hills-McCanna Co.

Valves, Diaphragm......Versatile Hills-McCanna diaphragm valves can handle corrosive or hazardous substances as well as air, water, normal liquid, gas and slurry flows. Request Catalog 104.
390O Hills-McCanna Co.

Valves, Diaphragm Control......Kieley and Mueller diaphragm control valves have solid not fabricated design, rugged guide posts, large column, super-finishing. Send for Bulletin CV53 for data.
390P Kieley & Mueller Inc.

Valves, Diaphragm Control......The valve has a solid, not fabricated design. Rugged guide posts and a large column. Fine machining and super-finishing. For the facts see Bul. CV53.
377 *Kieley & Mueller, Inc.

Valves, Diaphragm, Packless......Eliminate steam leakage and maintenance on air, vacuum, gas, light oil and similar services. Available in wide selection of materials and sizes. See Folder AD-1942.
390Q Crane Co.

Valves, Diaphragm Packless......Compact valve for vacuum and refrigeration service and control of hazardous and expensive fluids in Bulletin 101-B. Connections either flare or O.D.S.
390R Henry Valve Co.

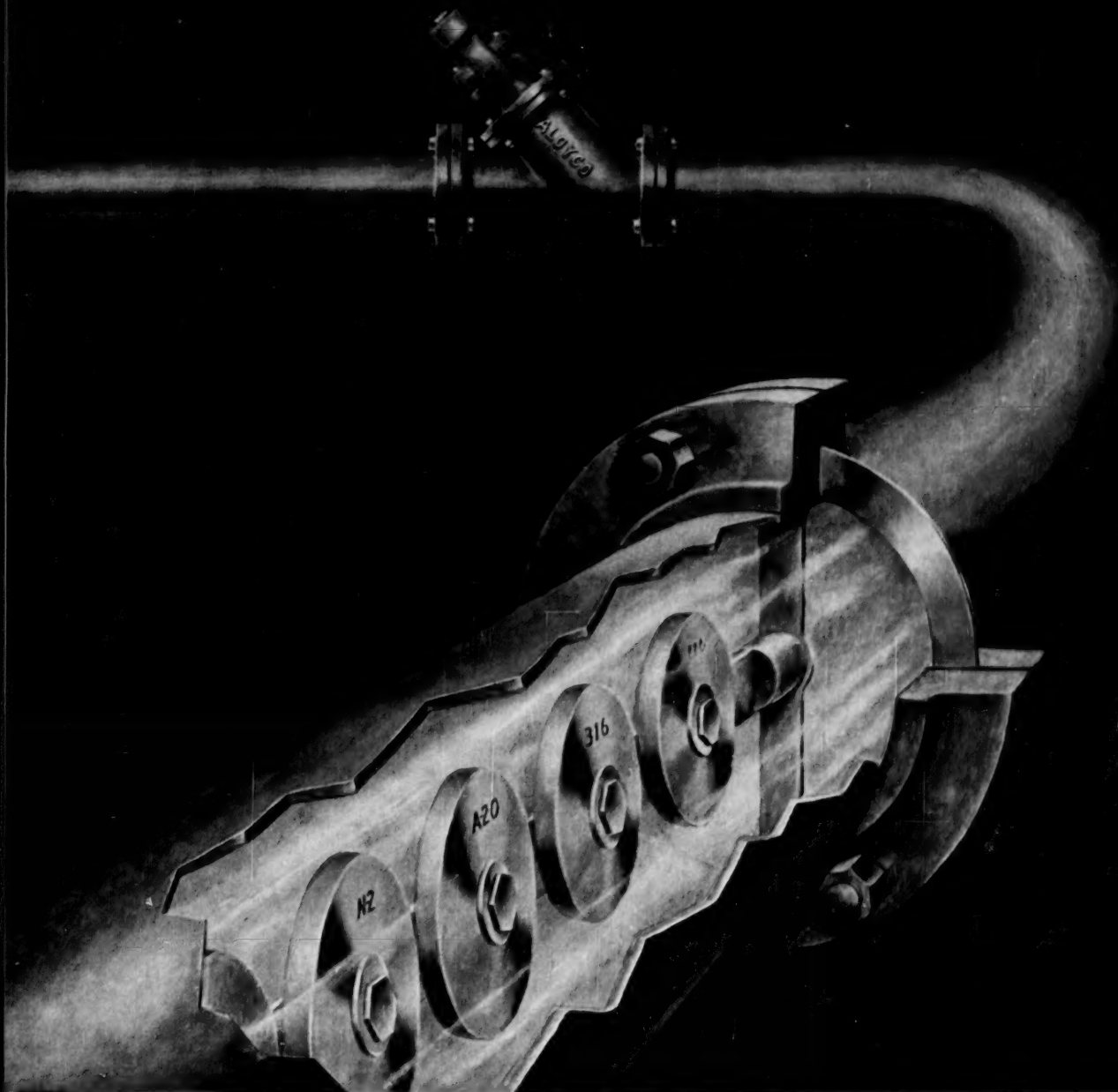
Valves, Drain......Offers descriptive information on line of Strahman ram type valves... the only drain valves that cannot clog up. Made in any cast metal to meet your requirements. Request Catalog.
390S Strahman Valves.

Valves, Drain or Sampling......Jerguson Drain or Sampling Valve is completely self-draining, withstands severe conditions, and offers foolproof operation. Request details on Drain Valve No. 23.
390T Jerguson Gage & Valve Co.

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Literature Available . . .

Valves, Engine—Stop—
Valves, Reducing

Valve, Engine Stop. Combined throttle and automatic engine stop valve described in 8-page bulletin shuts down turbine, compressor or engine in the event of overspeed or runaway. Request copy.
392A Golden-Anderson Valve.

Valves, Explosive. How liquid or gas can be stored indefinitely at pressures up to 5,000 psi. and then released instantaneously is described in new Catalog 5501-XV on the explosive-actuated valve.
392B Conax Corp.

Valves, Fittings & Flanges. Vogt drop forged steel valves, fittings and flanges for oil, steam, water, air, gas and refrigeration services withstands shocks, stresses, corrosion. Request Catalog F-9.
392C Henry Vogt Machine Co.

Valves & Fittings, Plastic. Illustrated 16-page bulletin on line of PVC valves and fittings includes 4 pages of application tables, cutaway drawings and four data tables. Request your copy.
392D Walworth Co.

Valves, Float. No. 60 Float Valve—globe or angle—for many different services, simple in construction, accurate in operation. Has single seat, pilot stem. For information, see Bulletin 101B.
392E Davis Regulator Co.

Valves, Forged Steel. Chrome stainless steel trim, with case-hardened wedges and discs, assures protection against corrosion, erosion, galling. Specifications, details in Forms 195 & 195-R.
392F Ohio Injector Co.

Valves, Forged Steel. Advantages of bonnetless valves are: simplicity of design; fewer parts; elimination of stud, nut and union corrosion; lower maintenance cost; more safety. Catalog No. 700.
392G Velan Steam Specialties.

Valves, Gas. Fireye Series 81L automatic gas valves are fast closing and slow opening. Feature compression-type spring that automatically shuts off fuel in 0.8 of a second. Send for Bulletin CV-32.
392H Electronics Corp. of America.

Valves, Gate. Stand up perfectly under conditions ranging from 380 psi at 1000°F to 2000 psi at 100°F. Use Chapman List 990 valves for higher pressures. Full details available in Catalog 10.
392I Chapman Valve Mfg. Co.

Valves, Gate. STV series straight-through gate valves are full-opening and have a short flow path for minimum impedance. Small installation space is required. See Data Sheet 10-20.
392J Consolidated Electrodynamics.

Valves, Gate. Crane 33XL cast steel gate valves can withstand hot, corrosive liquids. Body seat rings, liners and flange faces are 18-8 SMO alloy, integrally welded. "Valve Performance Facts."
392K Crane Co.

Valves, Gate. Crane Ni-Resist alloy cast iron gate valves have greater resistance to corrosion, erosion and wear than ordinary cast iron valves, yet cost very little more. Circular AD-2047.
392L Crane Co.

Valves, Gate. Darling's fully revolving double disc parallel seat principle assures uniform wear distribution, automatic seating compensation, avoidance of disc-to-seat galling. Catalog 57.
392M Darling Valve & Mfg. Co.

Valves, Gate. Darling gate valves made in metals, types and sizes for most services and for pressures up to 1500 pounds. Revolving double disc parallel seat principle. Bulletin 5003.
392N Darling Valve & Mfg. Co.

Valves, Gate. Jenkins Ni-Resist cast iron or stainless steel gate valves are designed especially for corrosive services, have good metal-to-metal wearing qualities. Free of copper. Get Bulletin 121.
392O Jenkins Bros.

Valves, Gate. "Ni-Resist" gate valves show their ability to withstand corrosion and cut costs in a wide range of corrosive and erosive services. Combination cast iron & stainless steel. Folder 205.
392P Jenkins Bros.

Valves, Gate. Information about Kennedy's cylindrical design in Standard Bronze Gate Valves, for steam, water, oil, or gas. Available in screwed, solder joint and brazing socket ends.
392Q Kennedy Valve Mfg. Co.

Valves, Gate. Selecting the right O-B bronze gate valve is easy with a folder, 1323-Vr, which gives basic characteristics to consider and tells when these valves should be used. Valves are charted.
392R Ohio Brass Co.

Valves, Gate. Hamer leakproof gate valves incorporate a foolproof double sealing action design. Two Teflon seal rings compress dead tight against the wedge. Request Gate Valve Catalog.
386 Hamer Valves Inc.

Valves, Gate & Needle. Bulletin describes company's line of forged steel gate and needle valves, designed for the petrochemical, power and process industries. Request Bul. DH-80.
392S American Chain & Cable Co.

Valves, Gate, Stainless Steel. Design factors of stainless steel valves are discussed in Cooper Alloy's February Newscast. Shows how stainless steel is easier to maintain. Request your copy.
392T Cooper Alloy Corp.

Valves, Gate, Steel. Offer extra Crane ruggedness, tight seating with durable seat life, positive operation, greater freedom from repair and maintenance. For details, see Folder AD-1881.
392U Crane Co.

Valves, Gear Operated. Company announces the addition of optional worm gear operation to its standard line of jacketed plug valves from 3" to 8" line size in 2 and 3-way types. See Catalog 356.
392V Parks-Cramer Co.

* From advertisement, this issue

Valves, Globe.....Company offers circular on two pressure classes of Lunkenheimer LQ600 Bronze Globe Valves, for a wide variety of services from normal to exceptionally severe. Ask for Circular 602-2.
3931A Lunkenheimer Co.

Valves, Heavy Duty.....Brochure contains performance curves illustrating how round hole closing makes a difference compared with conventional pinch valves. Series S valves in Bul. 65.
3931B Equipment Engineers.

Valves, High Pressure.....New improved 60,000 p.s.i. valve provides greater operational safety and prevents unsafe use of interchangeable lower pressure fittings. Ask for Bulletin 455 with details.
3931C Autoclave Engineers, Inc.

Valves, High Pressure.....Feature Ealthrast ball-bearing yoke, internal streamlining, impactor handwheel, guided stellited disk, integral stellite seat, improved pressure-seal. Condensed Catalog.
3931D Edward Valves.

Valves, High Vacuum.....You'll find descriptions and illustrations of a comprehensive line of high vacuum valves in a 32-page engineering manual. Covers requirements imposed by high-vacuum service.
3931E NRC Equipment Corp.

Valves, Homogenizers.....Single and two-stage homogenizing valves with replaceable valve caps of 18-8 stainless. Nine models available. For information request your copy of Bulletin G-517.
423C *Cherry-Burrell Corp.

Valves, Hydraulic.....Bulletin presents object, applications, operation, specifications, prices, mounting dimensions, and ordering instructions for Type 555-RO four way hydraulic valves. Bulletin S-600.
3931F A. W. Cash Co.

Valves, Hydraulic.....Hydraulic motor valves are electrically operated by remote control by hand or thermostat. Open and shut operation. Operates in any position, ruggedly built. Bulletin 1080-A.
129c *Sarco Co.

Valve, Instrument.....According to Bulletin 571 a line of high temperature instrument valves resists wear better because it incorporates an integral seat insert of chromecobalt-tungsten alloy.
3931G Rockwell Mfg. Co.

Valves & Joints.....Wheaton bulk handling & truck tank equipment enjoys a world-wide reputation for performance "plus" wherever liquids are handled in volume. Complete product catalogs on request.
3931H Wheaton Brass Wks.

Valves, Lubricated Plug.....The design of the OIC lubricated plug valve prevents shank leaks and helps retain gland adjustment longer. Company makes information available in Form 1003-R.
3931I Ohio Injector Co.

Valves, Lubricated Plug.....36 p. covers line of iron and steel lubricated plug valves available. Many illustrations of single, screwed and bolted gland type valves are shown. Catalog No. PV-4.
3931J Wm. Powell Co.

Valves, Metering.....For precision, flow control use this brass bar stock metering valve, equipped with an O-ring stem seal. Offers precise control—20 turns moves stem only $\frac{1}{8}$ ". Bulletin BSV256.
3931K Hoke Inc.

Valves, Mixing.....Company offers bulletin describing unique mixing valve that produces hot water from cold water and steam, Style D Mixer. Describes applications and operation. Bulletin 369.
3931L Powers Regulator Co.

Valves, Needle.....68 p. catalog contains specifications on needle valves of all sizes as well as toggle valves, packless valves, special purpose valves, fittings and accessories. Request your copy.
3931M Hoke Inc.

Valves, Needle.....Catalog NV-1 describes valves for fine regulation of water, gas and other fluids. Bulletin NV-2 describes line of valves in 416 corrosion-resistant stainless steel.
3931N Marsh Instrument Co.

Valves, Needle.....Catalog hails the Marsh needle valve as the first throttling and shutoff needle valve suitable for working pressures up to 10,000 psi. which will also operate efficiently at low pressure.
3931O Marsh Instrument Co.

Valves, Nickel Iron.....Designed for chemical process industries, valves are recommended for control of mildly corrosive liquids with minimum quantities of mineral acids. Details in Bulletin 118.
3931P Jenkins Bros.

Valves, Packless.....Fulton Sylphon packless valves are complete valves capable of mastering the toughest possible combination of conditions. Assure utmost safety. Request Bulletin 813-PC.
3931Q Robertshaw-Fulton Controls.

Valves, Packless.....Fulton Sylphon Packless Valves assure safety in handling hazardous materials, require no periodic maintenance, and practically eliminate downtime. Bulletin 813-VC.
3931R Fulton Sylphon Div.

Valves, Packless.....Complete line of packless valves to handle hazardous liquid and gas is described in 22-page bulletin. Data for specifying and ordering, application and selection charts.
3931S Robertshaw-Fulton Controls.

Valve, Pinch.....General and detailed information on the Flex Valve is found in Catalog FL-1116. You will find all the information on each model that you need to make correct selection.
3931T Farris Flexible Valve.

Valves, Pinch.....Folder explains features of the Masco-Grigsby pinch valve which now incorporates an air-hydraulic opening and closing mechanism for improved operating results.
3931U Mine & Smelter Supply Co.

Valves, Pinch Type.....This Catalog details line of flexible, pinch-type, hose-bodied valves in both Standard and new Superseal, metal-enclosed designs. Major feature—long data section.
3931V Farris Flexible Valve Corp.

Valve, Plastic Ball.....Information about the all PVC Double-Seal ball valve is given in a bulletin now available. This type D88 valve is used with normal or high-impact plastic piping.
3931W Jamesbury Corp.

Valves, Plug.....Choose from Homestead Lever-Sealed Plug Valves cast of metals and alloys to specification in sizes from 1" to 12"; for pressures from vacuum to 1500 lbs. See Reference Book 39-3.
3931X Homestead Valve Mfg. Co.

Valves, Plug.....Homestead Lubricated Plug valves have streamlined parts, controlled pressurized lubricant system, no overlubrication, triple head seal. Request a copy of Valve Reference Book 39-5.
3931Y Homestead Valve Mfg. Co.

Valves, Plug.....Engineered for maximum wear in valve-killing services. For any close-control steam service like drains, bypass lines, drips, blowoff, throttling, bleeders. Details in Folder 202-A.
3931Z Jenkins Bros.

Valves, Plug.....OIC plug valves stay in adjustment without leakage. Company makes literature available for those interested in the gland design and construction of valves.
3931AA Ohio Injector Co.

Valves, Plug.....For special services—handling products that will harden or congeal at ordinary temperatures—Wedgeplug Valves can be supplied steam-jacketed. Details in Coated-Plug Folder.
3931BB Wedgeplug Valve Co.

Valves, Polyvinyl Chloride.....Chemtrol valves have excellent corrosion resistance, outstanding and constant flow characteristics, and immunity to electrolysis and galvanic action. Catalog C1066.
3931CC Chemtrol Corp.

Valves, Porcelain.....Company makes available literature covering the features and advantages of porcelain valves. Includes description, characteristics and specifications of product line.
3931DD Lapp Insulator Co.

Valves, Pressure Gage.....Ideal for cold services, waxes and other heavy materials. Design reduces threaded connections; combines unions, nipples, etc. in compact unit. Data Unit No. 252.
3931EE Jerguson Gage & Valve Co.

Valves, Pump.....Durabla pump valves offer 7 points of superiority. Feature tapered or V-shaped stud which screws down tight to the seat. Complete details available in 8-page booklet CE-57.
3931FF Durabla Mfg. Co.

Valves, Reducing.....Leslie "Hi-Flow" reducing valve with capacity-regulation features never offered before. Have these advantages: fully balanced, drop-tight shutoff, trouble-free design. Bulletin 553.
3931GG Leslie Co.

Valves, Reducing.....Air loaded, diaphragm operated, pressure reducing valve for steam heat and process steam applications. Has simple design with only two moving parts. Bulletin 561.
3931HH Leslie Co.

Literature Available

Valves, Reducing & Relief—
Valve, Y

Valves, Reducing & Relief.....Company offers combination pressure reducing and relief valve for air, gas, oil or water service that operates on initial pressures to 4000 psi. Request Bulletin F-56.
394A Atlas Valve Co.

Valves, Regulating.....Advantages of packless construction in temperature regulating valves are shown in Bulletin T150. Gives detailed information on features of Spence temperature regulators.
394B Spence Engineering Co.

Valves, Regulating.....External pilot mounting provides simplified maintenance. Trouble shooting is faster, downtime is reduced. For information on wide range of regulating valves, see Bulletin 1005.
394C Spence Engineering Co.

Valves, Regulator, Temperature & Pressure.....OPW-Jordan valve, with the sliding gate, designed to overcome wire drawing, valve leakage, poor control, chatter, excessive maintenance. Bulletin J-90.
394D Jordan Corp.

Valve, Relief.....Catalog sheet describes spring-loaded relief valve. In condensing systems valve maintains back pressures. Photograph, diagram, dimensions and list of materials.
394E Atlas Valve Co.

Valves, Relief.....Relieve gas or liquid under pressure or vacuum and maintain constant pressure or vacuum on lines, holders and tanks. Relieves at predetermined pressure or vacuum. Bul. 6500.
394F Norwalk Valve Co.

Valves, Relief & Back Pressure.....Offers line of relief valves and back pressure valves which can be used with corrosive fluid at pressures to 1500 psi and temperatures to 250 F. Bul. 1255-B.
394G Milton Roy Co.

Valves, Reverse Flow.....Company offers information on the Norwalk Reverse Flow Relief and By-Pass Valves for gas, air and liquids. Includes dimension diagrams, etc. Bulletin 6600.
394H Norwalk Valve Co.

Valves, Rubber Pinch.....For remote control of low rates of flow in small diameter piping. Sleeve sizes from 1/16 to 1/2 in. ID interchangeably use the same valve body. Request Bulletin M-1.
394I Red Jacket Co.

Valves, Safety Relief.....Offer valuable features: economical "2 in 1" design; peak performance; absolute protection; maximum interchangeability. Full range of sizes and pressures. Catalog 1900.
394J Manning Maxwell & Moore.

Valves, Semi-Steel.....Revised 43-page bulletin (V-203, Rev. 1) supersedes earlier 35-page edition. Cutaway photos detail the working parts of four principal types of Rockwell-Nordstrom semi-steel valves.
394K Rockwell Mfg. Co.

Valve, Shutoff.....Safety shutoff valves described and illustrated in Bulletin 22 include standard solenoid operated valve approved by FM, UL and CSA; four combinations of pressure holding devices.
394L North American Mfg. Co.

Valves, Sliding Gate.....Unique sliding gate seating design and other exclusive features of the OPW-Jordan pressure reducing valve are responsible for its outstanding performance. Bulletin J-160.
394M Jordan Corp.

Valves, Solenoid.....ASCO solenoid valve has three operating parts. Offers advantages: simplicity in operation, up to 400 cycles per minute, converts in 30 seconds. Full details in Bulletin 8316.
394N Automatic Switch Co.

Valves, Solenoid.....ASCO Valves adapt to handle almost any corrosive gas or liquid. Standard, or explosion-proof enclosures may be specified. Request "Solenoid Valves for Corrosive Applications."
394O Automatic Switch Co.

Valves, Solenoid.....Release gives information concerning No. HV 44-816 high pressure, heavy fuel oil, pilot operated solenoid valve. Includes description of outstanding features.
394P Automatic Switch Co.

Valves, Solenoid.....Bulletin 8210A describes Asco two-way solenoid valves in sizes ranging from 1/2 to 3 inches, with simple construction, ruggedness, freedom from porosity, compactness.
394Q Automatic Switch Co.

Valves, Solenoid.....Designs in ASCO's line of 2, 3 and 4 way solenoid valves included in catalog. Contains engineering information, flow charts, operation and construction details. Catalog 201.
394R Automatic Switch Co.

Valves, Solenoid.....Safety shut-off valve provides tight seating . . . large flow capacity. Ideally suited for use as safety shut-off valve on gas and oil fired furnaces, ovens and boilers. Details in Bulletin 8022.
394S Automatic Switch Co.

Valves, Solenoid.....Choose rugged industrial type Davis solenoid valves . . . for less downtime—less maintenance—more reliable control. For complete details of features, request copy of Bulletin 700.
394T Davis Regulator Co.

Valves, Solenoid.....Bulletin GX sets forth details on the line of "All-316" stainless steel solenoid valves for corrosive gases and liquids. Valves are normally closed, angle pattern.
394U J. D. Gould Co.

Valves, Solenoid.....Bulletin describes and illustrates additions to the line of bronze and stainless steel solenoid valves. Gives features, general specifications, list prices, etc. Bulletin F-1.
394V J. D. Gould Co.

Valves, Solenoid.....Company offers information concerning their full port, normally closed packless solenoid valve. Designated as Type A, it features Magnatrol's removable operating assembly.
394W Magnatrol Valve Corp.

Valves, Spray.....Bulletin provides complete information on Farval spray lubrication systems for open gearing and slide surfaces. Offers descriptions of manual and automatic systems. Bulletin 60-A.
394X Farval Corp.

Valves, Stainless Plug.....Line of stainless-steel, teflon-sleeved plug valves described in bulletin S-1 are recommended for corrosives, solvent and slurries, and materials which interfere with seating.
394Y Continental Mfg. Co.

Valves, Stainless Steel.....Cooper Alloy stainless steel valves feature: extra-deep stuffing box, union bonnet joint, retained renewable disc. See "Design Factors in Stainless Steel Valves."
394Z Cooper Alloy Corp.

Valves, Stainless Steel.....Stainless Steel Valves Booklet illustrates and describes range of Jenkins globe, gate, check, and Y valves, includes selection data, survey forms. Form 200-A.
394AA Jenkins Bros.

Valves, Stainless-Steel Bass.....New type valve equipped with Teflon seals and trim in sizes from 1/2 to 2 in. is described in 4-page leaflet. Valve has low-pressure sealing, operates easily.
394BB Rockwood Sprinkler Co.

Valves, Steam Pressure.....Bulletin 981 on Type 44 pilot-operated, pressure-reducing and regulating valve includes photo and cross-sectional diagram, specifications, ratings, capacity chart, instructions.
394CC A. W. Cash Co.

Valves, Steam Solenoid.....Two way packless valve for variety of applications in automatic control of steam and hot fluids or gases at up to 400 F. Forged brass body and bonnet. Bul. 8222A, Form V5032.
394DD Automatic Switch Co.

Valves, Steel.....Stockham can supply your valve requirements with gates, globes, angles, checks (Catalog SV2) and with Wedgeplug non-lubricated steel plug valves (Catalog W-1-56).
394EE Stockham Valves & Fittings

Valves, Temperature Control.....OPW-Jordan self-operating temperature control valves have dead end shutoff, more accurate regulation, durable construction, sliding gate and plate. Bulletin J-180.
394FF Jordan Corp.

Valves, Thermostatic Control.....8 p. condensed catalog describes the Lawler Line of Thermostatic Control Valves. Highlighted is the BCA Concealed Shower Mixing Valve. Catalog #C-7.
394GG Lawler Automatic Controls.

Valves, V-Port & Solid Turned.....Use Point 4 Factor Trim where reduced capacity trim is required. In V-port & solid turned designs for double or single seated valves. Data Sheet 10-5.
394HH Mason-Neilan.

Valve, Y.....A leaflet gives details on new type all-fabricated stainless-steel Y valve with renewable Teflon disk. Valves are fabricated to schedule dimensions to use with schedule pipe.
394II Star Tank & Filter Corp.

send for your free copy today

CORRECT INSTALLATION MEANS LONGER SERVICE

IMPORTANT THINGS TO REMEMBER WHEN INSTALLING CORRUGATED FLEXIBLE METAL TUBING

There are three fundamental points to remember in installing corrugated flexible metal tubing. ALL of equal importance:

1. Always install so that there are no sharp bends. Sharp bends shorten the life of any flexible metal tubing.
2. Always install without twist. Twists develop torsional stress—destructive to tubing.
3. Always install in that flexing takes place in one plane. Flexible metal tubing will give service over long periods when properly installed.

The minimum recommended bend diameter of each type of corrugated tubing is listed in this catalog. Flexible tubing should not be bent more than the minimum recommended bend for installation involving constant flexing.

TYPICAL INSTALLATIONS

INSTALLATION

For alignment and ease of installation where there is no significant motion or vibration.

STRAIGHT LINE

For vibration and infrequent motion in any plane. Depending on the type of tubing, install at right angles to the plane. Length required for any section of "T" or "S" tubing depends directly on the frequency of motion, diameter of the flexible tubing, and type of flexible tubing.

The following example is offered as a guide to the correct flexible tubing length (L) based on the use of bronze S-T type tubing for:

Vibration: Total amp of 1/2" at 1,000 rpm.

Independent Markings: Minimum total motion of 1" (10).

Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Length (in.)	24	36	48	60	72	96



VERTICAL LOOP

For relatively slow back-and-forth travel. The tubing for relatively slow back-and-forth travel. The tubing for relatively slow back-and-forth travel. The tubing for relatively slow back-and-forth travel.

S & S tubing	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
A	6	12	18	24	30	36
B	6	12	18	24	30	36

Formula: Round length = $6 \times \sqrt{1.5 \times \text{amp} \times \text{rpm}}$

*See Explanation of Formula on page 35.

34

HORIZONTAL LOOP

For relatively slow back-and-forth travel. The tubing for relatively slow back-and-forth travel. The tubing for relatively slow back-and-forth travel. The tubing for relatively slow back-and-forth travel.

S & S tubing	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
A	6	12	18	24	30	36
B	6	12	18	24	30	36

VERTICAL LOOP

For relatively slow back-and-forth travel. The tubing for relatively slow back-and-forth travel. The tubing for relatively slow back-and-forth travel. The tubing for relatively slow back-and-forth travel.

S & S tubing	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
A	6	12	18	24	30	36
B	6	12	18	24	30	36

EXPLANATION OF FORMULA

"A" designates the amount of travel, in inches, which the flexible tubing is subjected to. "B" designates the amount of travel, in inches, which the flexible tubing is subjected to.

"C" is a factor which indicates the length of the tubing should be bent.

"D" is a factor which indicates the length of the tubing should be bent.

"E" is a factor which indicates the length of the tubing should be bent.

"F" is a factor which indicates the length of the tubing should be bent.

"G" is a factor which indicates the length of the tubing should be bent.

"H" is a factor which indicates the length of the tubing should be bent.

"I" is a factor which indicates the length of the tubing should be bent.

"J" is a factor which indicates the length of the tubing should be bent.

"K" is a factor which indicates the length of the tubing should be bent.

"L" is a factor which indicates the length of the tubing should be bent.

"M" is a factor which indicates the length of the tubing should be bent.

"N" is a factor which indicates the length of the tubing should be bent.

"O" is a factor which indicates the length of the tubing should be bent.

"P" is a factor which indicates the length of the tubing should be bent.

"Q" is a factor which indicates the length of the tubing should be bent.

"R" is a factor which indicates the length of the tubing should be bent.

"S" is a factor which indicates the length of the tubing should be bent.

"T" is a factor which indicates the length of the tubing should be bent.

"U" is a factor which indicates the length of the tubing should be bent.

"V" is a factor which indicates the length of the tubing should be bent.

"W" is a factor which indicates the length of the tubing should be bent.

"X" is a factor which indicates the length of the tubing should be bent.

"Y" is a factor which indicates the length of the tubing should be bent.

"Z" is a factor which indicates the length of the tubing should be bent.

New catalog simplifies selection and ordering of flexible metal hose and tubing

Here's the most complete, most up-to-date catalog on flexible metal hose available today.

Full description of the two basic types of flexible metal hose: corrugated metal tubing and strip-wound hose. Suggestions on correct installation of flexible metal connectors — specifications, bend diameters, length of tubing needed. Type designations and descriptions of flexible hose and tubing made of brass, bronze, aluminum, stainless steel, steel, Monel. Descriptions of end fittings.

Guide to special flexible metal hoses for special jobs: Vibration Eliminators; Flexpipe* flexible connectors; Presstite* connectors for laundry and garment pressing machines; Bracketubes for steam-heated platen presses; Sealite* flexible, liquid-tight electrical conduit; tank car unloading hose assemblies; tar and asphalt hose assemblies; insulated hose; exhaust and air intake hoses; flexible lamp arms; shielding conduit; Flexlube* oil feed and coolant lines; and other products for special services.

*Trademark. †Reg. U.S. Pat. Off.

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flexible metal hose and tubing

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FREE FLEXIBLE METAL HOSE AND TUBING CATALOG

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Waterbury 20, Conn.

Gentlemen: Please send me a free copy of your new flexible metal hose and tubing catalog, G-560.

NAME & TITLE.....
COMPANY.....
ADDRESS.....
CITY, ZONE, STATE.....



Acid System

Safe, simple handling of acid during dilution. (396A)

... Vacuum acid-handling system transfers, measures and dilutes acid without need for lifting carboys and without subjecting any vessels to positive pressure. Equipment can be fur-

nished as part of regenerant system of water-treatment processes; only water line need be added to system.—*Graver Water Conditioning Co., New York 11, N. Y.*

Autoclave

For pressure to 750 psi. (396B)

... Reactions up to 750 psi. can be handled by autoclave constructed of glassed carbon steel. Unit offers cor-

rosion resistance of glass combined with high structural strength.—*Pfautler Co., Rochester, N. Y.*

Blender, Flame

Mixes up to 1,000% excess air with hot gases. (396C)

... Through use of Blended-Flame unit, high-temperature combustion products can be blended thoroughly with up to 1,000% excess air. This insures complete combustion of fuel

and gives better circulation of heat in furnaces, ovens, kilns and other heat processing equipment at temperatures from 400 to 1,800 F.—*Hauck Mfg. Co., Brooklyn 15, N. Y.*

Breaker-Conveyor

Eliminates time-consuming operations in chemical processing. (396D)

... Automatic combination breaker-conveyor, installed at Toms River-Cincinnati Chemical Corp., (Toms River, N. J.) eliminates five manual operations during chemical process-

ing. At this location, breaker operates primarily on dye intermediate, but it's well able to handle other heavy density chemicals.—*Gifford-Wood Co., Hudson, N. Y.*

Centrifuge, Pressure

Operates continuously at high process pressure. (396E)

... Merco pressure centrifuge is said to be first centrifugal separator to operate continuously at high temperatures and pressures. High-speed, bowl-type unit operates up to 100 psi. and 330 F., can cut processing time

by eliminating cooling and pressure reduction prior to centrifuging. Important feature is housing closure which seals in high internal operating pressures.—*Dorr-Oliver, Inc., Stamford, Conn.*

Chains, Kiln

For wet process kilns; resist heat, wear, corrosion. (396F)

... Links and shackles in Thermopruf kiln chain system provide longer wearing qualities, greater corrosion and heat resistance than any steel-type kiln chain. Small inventory of

Thermopruf links, connectors and shackles enables you to make any length of chain required without cutting or welding.—*Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.*

Chlorinator

Variable orifice controls chlorine flow. (396G)

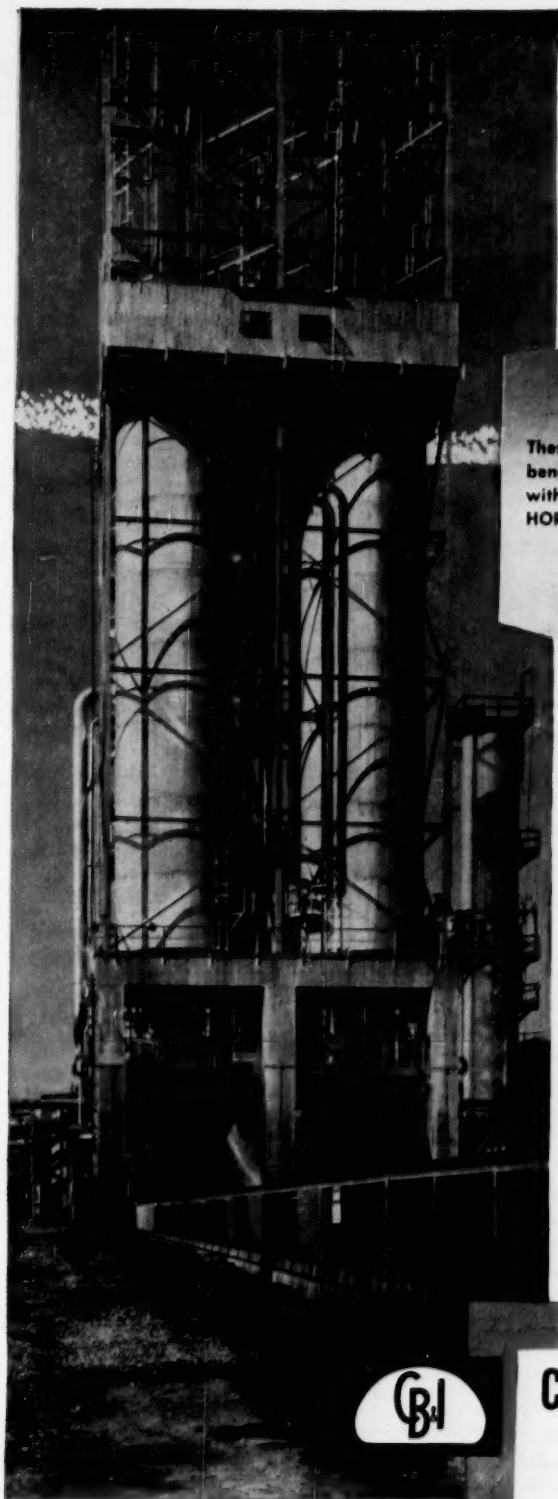
... Built entirely with corrosion-resistant materials, first two models of new line of chlorinators feature new V-notch variable orifice and control. With this control, there's wide-

range adjustment of chlorine flow, excellent reproducibility of flow by simple adjustment, uniform accuracy over entire wide flow range.—*Wallace & Tiernan, Inc., Belleville 9, N. J.*

For More Information . . .

For more information on any item, simply write its code number on one of the Reader Service postcards inside the back cover of this issue. Mail it and information comes to you direct from the manufacturer. You can also write directly to the producer at

the address given. Or you can refer to the August 1956-August 1957 issues of CE by using the monthly index in the New Equipment department or the annual index in December. For speed and convenience use Reader Service Postcards.



405 STAINLESS STEEL HORTONCLAD was used in the fabrication of these two 16-ft. diam. by 65-ft. high coking chambers by CB&I.

HORTONCLAD®

(manufactured by vacuum bonding process)

provides better corrosion protection
in clad vessels

These
benefits
with
HORTONCLAD® . . .

- UNIFORM THICKNESS
- HIGH STRENGTH BOND
- CLEAN, CONTAMINANT-FREE SURFACE
- ADAPTABILITY TO ANY SIZE OR SHAPE

Hortonclad, available only in CB&I tanks, pressure vessels and other clad structures, is unlike other clad materials. The bond is accomplished by a flux-free high strength vacuum bonding process producing a clad plate with an integral and continuous bond of exceptionally high strength. Uniform clad thickness results as both alloy cladding and backing are in their final thickness *before* bonding. Silver, stainless steels (both chromium and chromium nickel) nickel and high nickel alloys such as Monel, Inconel, and Hastelloys B and F can be employed in the Hortonclad process.

In corrosive service, Hortonclad permits the use of higher temperatures, concentration and pressures—without the high cost of solid alloy vessels. For further information on its application write our nearest office . . . ask for the *Hortonclad* bulletin.



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Chicago Bridge Limited, London; Sociedade Chibridge de Construcoes Ltda., Rio de Janeiro.

P52

Classifier

Combines sharp cutpoint, high efficiency, high capacity. (398A)

... Optimum air-vortex Super Classifier handles a broad range of dry powders and fractionates solids by particle size with hitherto unattainable efficiency. Super Classifier excels in separation of maximum product yield at precisely the desired cutpoint. Fine fractions with top size in 15-20-micron range will contain less than 0.01-0.04% 325 mesh particles. Prod-

uct recovery or yield varies from 80% to well over 90%, depending upon density of powder and end-use requirements for the product. Super Classifier greatly reduces circulating load on existing grinder systems. Thus, the product output is raised without increasing the grinder capacity.—*Sharples Corp., Philadelphia Corp., Philadelphia 40, Pa.*

Column, Distillation

Separates liquids with boiling points less than a degree apart. (398B)

... What the Kuhn column does better than previous columns is to separate difficult mixtures of liquids into pure products in a single operation. It provides up to 400 theoretical plates for separating liquids that differ less

than a degree in boiling point. Where boiling points differ by a good margin, Kuhn column operates with high throughput and one or two theoretical stages.—*Sulzer Bros., Ltd., New York, New York, N. Y.*

Column, Ion-Exchange

Combines high throughput, low theoretical stage height, continuous flow. (398C)

... Higgins continuous ion-exchange contactor, suitable for all types of ion exchange processes, offers prospective user advantages of continuous countercurrent flow operation without sacrificing features of high throughput and low theoretical stage height associated with fixed-bed operation. In

Higgins contactor, liquid flows downward against packed resin bed. Procedure avoids danger of fluidization which is inherent in most other proposed continuous ion exchange devices. Incompletely filtered slurries can be processed.—*Chemical Separations Corp., Oak Ridge, Tenn.*

Contactor, Continuous

Overcomes channeling troubles. (398D)

... Designed for large-scale extraction, continuous horizontal contactor features unique, slow-speed agitation. Unit may be used also for leaching,

ion exchange, decolorizing, deodorizing, crystallizing, washing and flotation exchange operations.—*Gifford-Wood Co., Hudson, N. Y.*

Cover, Floating

Plastic pillows cut liquid loss from tank. (398E)

... Evaporation from open tanks and vessels is reduced as much as 70% and solution life is increased by polyethylene pillows. 1½-in. layer of tiny

air-inflated pillows retards evaporation. Pillows are ½-in. O. D. by 1½ by 1 in.—*American Agile Corp., Bedford, Ohio.*

Disperser-Homogenizer

Designed for long life. (398F)

... Pioneer all-purpose mill and homogenizer is usually furnished with porcelain or ceramic rotor and stator which give high throughput rates and exceptional particle fineness. Rotor

and stator are provided with patented abrasion-resistant wear rims to prevent erosion of edges of stones and increase stone life greatly.—*Tri-Homo Corp., Salem, Mass.*

Dryer

Both dries and cools solid granules, powders. (398G)

... Through addition of lithium chloride system, Turbo Dryer Cooler both cools and dries free-flowing, granular or powdery solids. Alternate piling

and spreading of material in dryer promotes cooling and prevents lumping.—*Wyssmont Co., Long Island City, N. Y.*

Dryer, Drum

Handles solids formerly dried on tray dryers. (398H)

... Feeds ranging from pasty mixes to distinctly granular solids are dried equally well by the Drumulator. Mate-

rial is dried in space between heated drum and continuous belt.—*Jeffrey Mfg. Co., Columbus 16, Ohio.*

Dryer, Heavy-Duty

For difficult jobs. (398I)

... Both batch and continuous dryers are available to handle drying jobs where solids become almost an un-

movable mass, yet must be mixed during drying.—*Bethlehem Foundry & Machine Co. Bethlehem, Pa.*

Dryer, Rotary

Dries granular solids without losing fines. (398J)

... Concentric fire-tube design of Carpeo Dual-Flow dryers causes hot gases to travel full length of dryer before contacting feed. This prevents any direct impingement of flame on

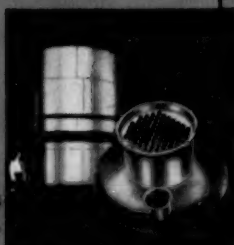
solids and provides indirect heating by radiation and direct heating by hot gases. Two available models are RD1020 and RD1430.—*Carpeo Mfg. Co., Jacksonville 6, Fla.*

VERSATILITY

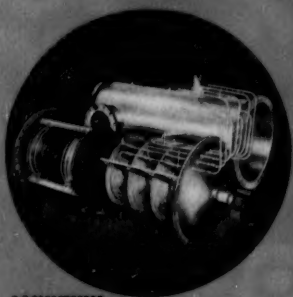
✓ DESIGN
✓ ENGINEERING
✓ FABRICATION



STEEL
Crystallizers, 10' 3" High.
Specially Designed, with cooling Coils.



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STEEL**
Reaction Vessel,
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Special Coils and
Bubble Cap
Section. One of
four Units.



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Pressure Vessel,
A.S.M.E. Code Construction.



COPPER
Distillation Unit,
containing Perforated
and Bubble Cap Trays.

When purchasing new processing equipment, important economies are to be gained from working with one versatile source. Acme experience in engineering, design and fabrication makes possible this concentration of responsibility.

The illustrations on this page, representing just a few from thousands of successful installations, give some indication of the scope of Acme achievement. This diverse experience with all the ferrous and non-ferrous metals assures the skillful fabrication of equipment for any purpose.

When planning a replacement or expansion program, consult Acme first!



Evaporator, Falling-Film

Has floating wiper blades in slow rotor. (400A)

... Falling-film evaporator features slow-speed rotor with floating wiper blades set on an angle to speed downward flow. Any liquid entrained by exhaust vapor is trapped by a sepa-

rator built integral with rotor. Advanced design feature permits use of an internal condenser with decreased cost, elimination of outside piping.—*Pfaunder Co., Rochester, N. Y.*

Flotation Machine

For ore operations. (400B)

... Type M flotation machine offers high degree of aeration and agitation at lower horsepower. It's recommended

for roughing or scavenging on any flotation operation.—*Denver Equipment Co., Denver 17, Colo.*

Foam Maker

For rigid and flexible polyurethane foams. (400C)

... New polyurethane foam maker is greatly simplified. All machines can be set easily to produce either flexible or rigid foams with wide range of properties. Mixed, foamed material

may be fed immediately into molds. Or discharge at mixing head may be mounted on extension lines for foamed-in-place operation.—*Klauder Williams Co., Philadelphia, Pa.*

Generator, Gas

Compact, low-cost unit produces O₂-free atmosphere. (400D)

... Gas generator produces oxygen-free atmosphere to protect products from deterioration and spoilage during bulk storage, dehydration, drying, shipping, packing. Control device eliminates supply line fluctuations and

provides more positive regulation of fuel than possible with ordinary throttling valves; thus assures constant, efficient combustion.—*W. F. & John Barnes Co., Food & Container Section, Rockford, Ill.*

Generator, Nitrogen

Produces nitrogen cheaply at point of use. (400E)

... Oxygen-free nitrogen with controlled hydrogen content can be produced from ammonia at point of use with model GNLX Nitroenal genera-

tor. Unit is cheap to operate and produces N₂ at a cost much less than nitrogen in cylinders.—*Baker & Co., Inc., East Newark, N. J.*

Generator, Ozone

Triples output. (400F)

... New power supply available for Welsbach industrial model ozonators triples ozone output and cuts over-all plant cost. Normal 60-cycle electric current is converted by power supply to 180-cycle current to operate ozona-

tor. And, provided flow of air or oxygen and cooling water are increased proportionately, power input and ozonator output are trebled also.—*Welsbach Corp., Philadelphia 2, Pa.*

Grinder, Dry

For micron range. (400G)

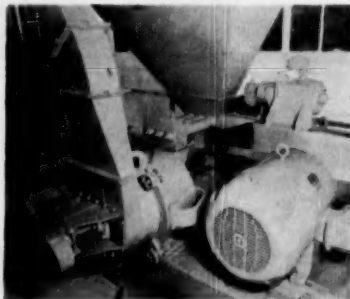
... New model of Micronizer dry grinding machine processes materials which may be harmed by conventional drying methods because holdup time

is short. Solids containing up to 30% moisture have been dried, ground and classified in one operation.—*Sturtevant Mill Co., Boston 22, Mass.*

Grinder-Classifier

Produces uniformly sized fine particles within narrow range. (400H)

... Particles finer than -325 mesh can be produced with greater economy using Pulvocron grinder and classifier. Particles are sized more uniformly with closer distribution of size over narrow range. Pulvocron has separate control of grinding and classifying chambers. Grinding and classifying rotors can be operated at differential speeds to obtain highest possible efficiency. Yet both units are encased within single housing.—*Strong-Scott Mfg. Co., Minneapolis 13, Minn.*



Laboratory, Materials

Available to basic industries to develop engineering data. (400I)

... Facility at Dwight-Lloyd Research Laboratory is designed to develop engineering data covering size enlargement techniques in materials fields such as iron ore and its concentrates, other metallic ores, raw

cement meal, clays and shales, coal wastes and non-metallics. Equipment is available to crush, size and screen, pelletize, heat harden, sinter, blend, dry, calcine.—*Dwight-Lloyd Research Laboratory, Cleveland, Ohio.*



SMIDTH

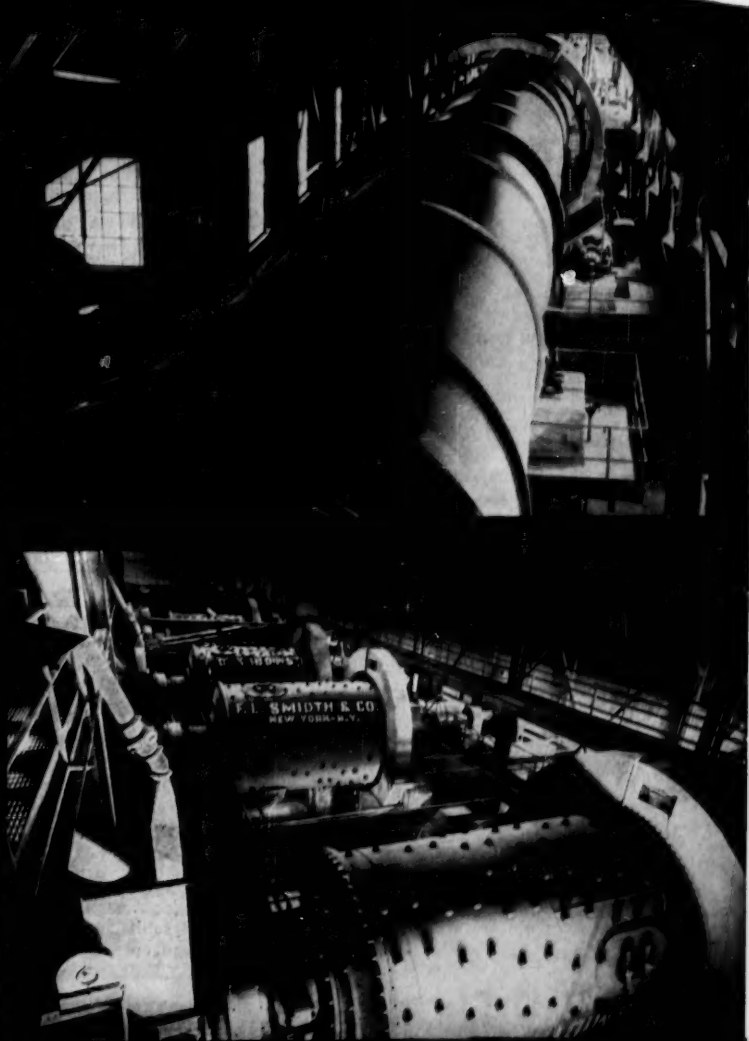
Rotary Kilns

For sintering, nodulizing, calcining, desulphurizing, oxidizing and reducing roasting—coolers, precoolers, preheaters, recuperators—and auxiliary equipment

Grinding Mills

Ball mills, tube mills and multicompart ment mills—open or closed circuit—wet or dry grinding also air swept for grinding and drying.

Over 1,000 Smidth Rotary Kilns and over 5,000 Grinding Mills supplied all over the world.



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New Process Equipment

1957 INVENTORY

Laboratory, Service

Solves grinding, mixing, separating problems. (402A)

... Customers' service laboratory established by Strong-Scott Mfg. Co., Minneapolis, is geared to conduct tests and check operations using variable procedures to simulate unit op-

erations in chemical, food and feed industries. Laboratory services are available on a no-charge basis.—*Strong-Scott Mfg. Co., Minneapolis 13, Minn.*

Mill, Attrition

Suitable for many materials at low cost. (402B)

... Attrition mill, handling wide range of materials, can grind, shred, fluff and granulate. Mill is said to be first of its kind to permit use of

standard motors in either open or totally enclosed construction from 20 to 60 hp.—*Strong-Scott Mfg. Co., Minneapolis 13, Minn.*

Mill, Ball

Uses centrifugal force to speed grinding. (402C)

... Through application of planetary motion, Steel-Shaw ball mill uses centrifugal force either to make a standard grind much faster or reduce particles to much finer sizes with im-

proved dispersion. English experience with mill indicates it will perform conventional 40-hr. grind within four hours.—*Kinetic Dispersion Corp., Buffalo 16, N. Y.*

Mill, Colloid

Has 20-40% more capacity than previous models. (402D)

... New design features on Charlotte colloid mill boost production capacities on lubricating greases, asphalt and tar emulsion, clay coatings, wood pulp binders. Colloid mill is fed and discharged under constant pressure to

eliminate aeration of product being handled. Distinctive grooving on stator and rotor produces stable emulsions and fine dispersions.—*Chemical Colloid Laboratories, Inc., Garden City Park, N. Y.*

Mill, Impact

For extremely high capacities and impact velocities. (402E)

... 40-in. Entoleter impact mill and centrifugal mixer produces impact velocities well above 30,000 ft. per min. This means impact forces are 2.25 times those attained previously with 27-in. unit. Particle size reduc-

tion has been extended with this machine to materials (e.g. coal, phosphate rock) that couldn't be handled with this type of equipment before.—*Entoleter Div., Safety Industries, Inc., New Haven 4, Conn.*

Pilot-Dryer

Highly versatile. (402F)

... New model pilot-plant and semi-works dryers are suited ideally to studies of spray drying problems and to small production runs of ordinary products. Through modifications made

in plant, you can adapt units for viscous materials, for producing hollow spheres or convert to a dispersion dryer.—*Proctor & Schwartz, Inc., Philadelphia 20, Pa.*

Pilot Plant, Grinding

Handles experimental or custom jobs. (402G)

... In Micronizer pilot plant, four fluid-energy mills will handle experimental and custom fine grinding. Classification covers sizes from 20 mi-

cons to smaller than one micron. Mill capacities range from $\frac{1}{2}$ to 2,000 lb./hr. or more.—*Sturtevant Mill Co., Boston 22, Mass.*

Plant, Distillation

Produces high-purity water from sea water. (402H)

... Sea-water distilling plant has been run well over capacity of 1,000 gal./hr. of distillate with less than $\frac{1}{2}$ grain/gal. total solids in product. Design features overcome traditional

contamination of distillate by entrained sea water. Operation of plant is automatic, scale-free and trouble-free.—*Badger Mfg. Co., Cambridge, Mass.*

Probe, Atomic

Aid in observing chemical processing. (402I)

... 3-million-v. Van de Graaff accelerator, installed at Shell Development Co.'s Emeryville, Calif., labs enables scientists to learn more about what goes on between and inside molecules

during certain processes. Machine emits radiations 50 times more powerful than largest cobalt-60 source in industry.—*High Voltage Engineering Co., Burlington, Mass.*

Probes, Corrosion

Inserted permanently in system, measure speed of corrosion electrically. (402J)

... With Corrosometer method, you can measure corrosion rates with speed and convenience without disturbing the system. You install special metallic probes in system, then follow how probes corrode by means of electric meter. Probes remain in system permanently. Method is only one that

can measure both uninhibited and inhibited corrosion rates on same metal specimen without removing metal from its environment. Most sensitive probes used with Corrosometer method detect as little as 1/10 of a microinch of corrosion.—*Crest Instrument Co., Santa Fe Springs, Calif.*

OUTSTANDING FEATURES

- **Lower Maintenance**

Tramp iron, manganese, and other foreign material cannot damage system. *No magnetic separation required.*

- **Continuity of Operation**

Grinding balls added while mill is in operation, maintaining constant level of grinding media. Production and fineness remain constant, month after month. No periodic shut-down for lubrication or replacement of wearing parts. Years of operation assured before parts (other than grinding balls) require replacement.

- **Minimum Power**

- **Lower Operating Costs**

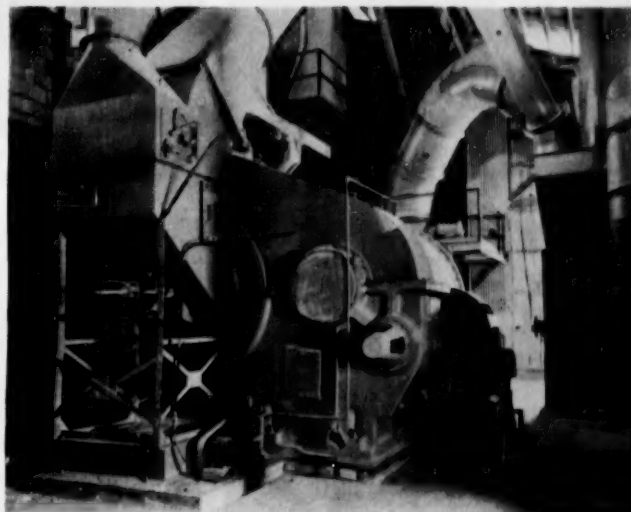
Dependability of equipment and reliable automatic feed control assure high production with minimum operating personnel.

- **Higher Production**

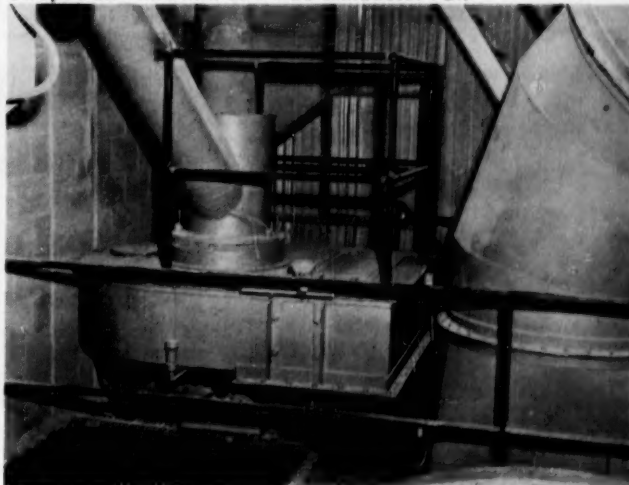
Single grinding unit capacities to 75 tons per hour, requiring less floor space and structural work per ton of production.

- **Flexibility of Design**

Kennedy-Van Saun Air Swept Ball Mill Grinding Systems available in a wide range of capacities to meet your requirements.



Kennedy-Van Saun 10' x 15' Integral Gear Drive Air Swept Ball Tube Mill and #93 Exhauster Fan.



Kennedy-Van Saun 60'' Enclosed Disc Feeder

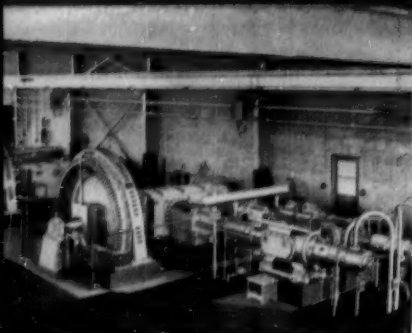
Send for free bulletin and technical data describing this equipment.

KENNEDY-VAN SAUN

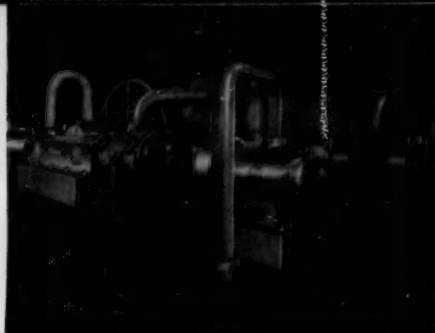
MANUFACTURING & ENGINEERING CORPORATION

TWO PARK AVENUE, NEW YORK 16, N. Y. • FACTORY, DANVILLE, PENNSYLVANIA

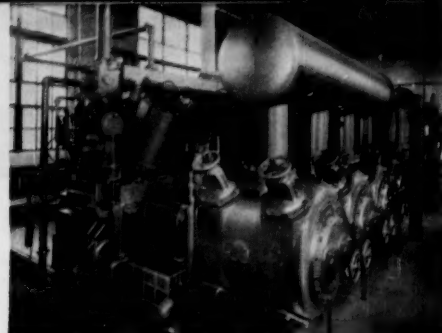
Is your process compressor



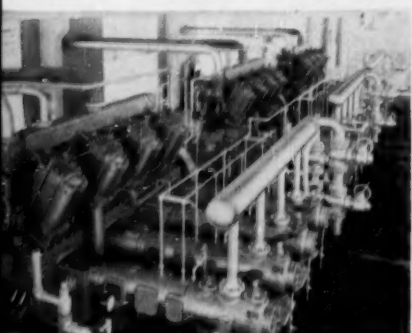
Ultra-High Pressures ...The electric-driven unit shown compresses synthesis gases to 15,000 psi. I-R has built units for 22,000 and 35,000 psi.



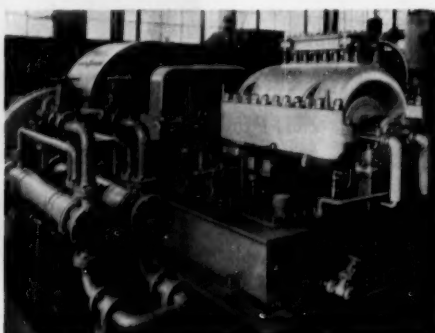
Hydrocarbon Gases are compressed in a chemical plant by six steam-driven XPV compressors totalling 4400 hp.



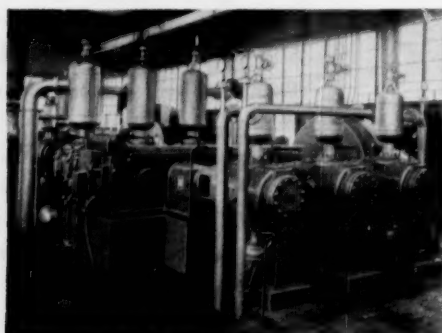
Coke Oven Gas mixed with natural gas is handled and utilized as fuel by these 440-hp SVG gas-engine compressors.



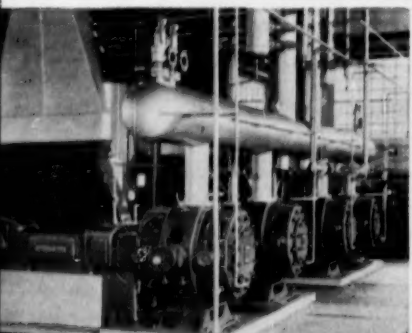
Hydrogen is recycled through a catalytic reformer by these SVG gas-engine compressors equipped with 'NL' non-lubricated cylinders.



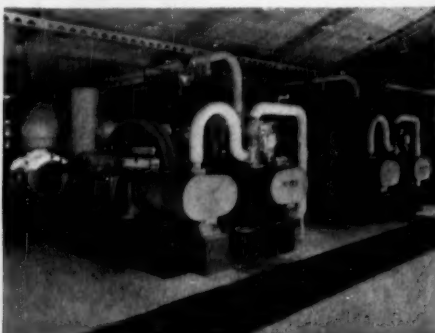
Nitrogen Separation ...This 1750-hp centrifugal unit compresses air for liquefaction and separation in an ammonia synthesis plant.



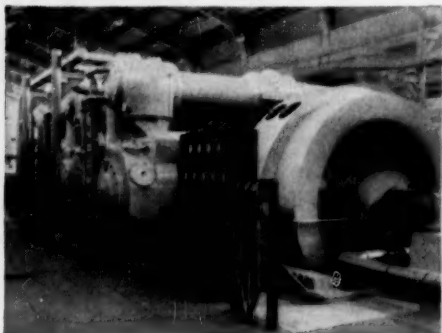
Cascade Refrigeration for purification of hydrogen utilizes propane, methane and ethylene gases compressed separately by these multi-purpose compressors.



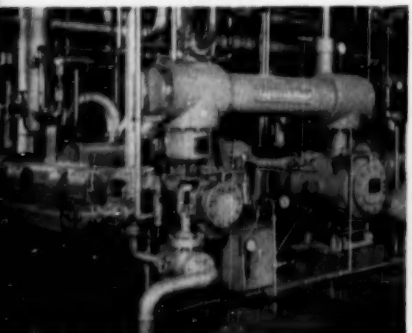
Penicillin is the product of this Brazilian plant where these PRE compressors with 'NL' non-lubricated cylinders supply clean air for agitation.



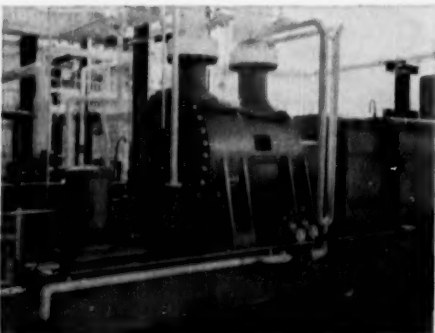
Hydrogen Chloride gas is compressed by three XPV steam-driven compressors with 'NL' non-lubricated cylinders. Intake is at 54° below zero.



6000 Horsepower in a single compressor. Two units this size handle dual services in an ammonia plant. Three smaller I-R units operate in the same plant.



Carbon Dioxide is compressed in a dry-ice plant by two steam-driven XPV compressors. Power and compression cylinders are mounted on the same frame.



Recycle Hydrogen is handled by this 3500-hp high-pressure centrifugal compressor. The vertically split unit has a forged-steel barrel.

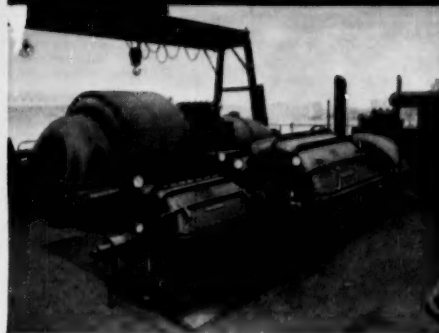
The 21 installations shown here represent only a few of hundreds of processes being served by Ingersoll-Rand reciprocating and centrifugal compressors.

If your compression job is not portrayed here, chances are that I-R engineers have designed compressors now

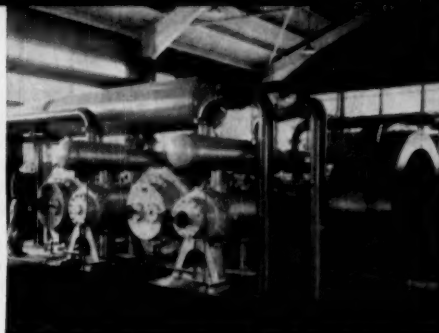


Send for your copy of Form 3132-A

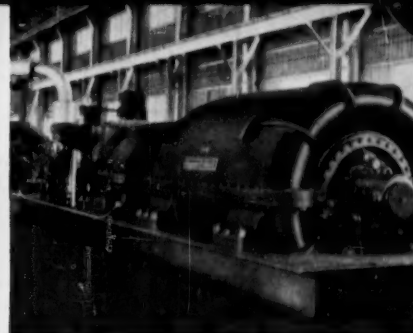
application shown here?



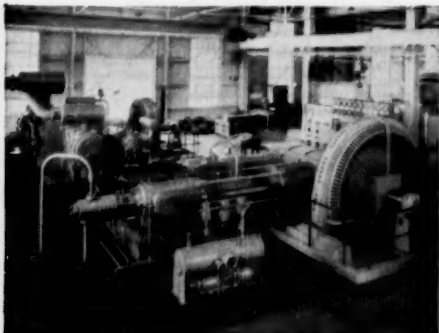
Cat Cracker gas compressor, foreground, is largest in existence, delivering 20,805 cfm at 205 psi. Background unit is main air blower.



Three Gases are handled separately by this 4000-hp electric-driven HHE compressor. Air, nitrogen and natural gas are compressed simultaneously.



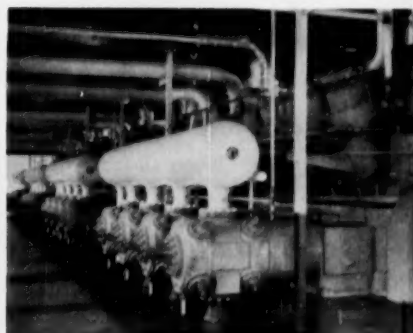
Gasoline Plant... Each of four centrifugal gas compressors, rated at 38,600 cfm, is driven by an I-R steam turbine.



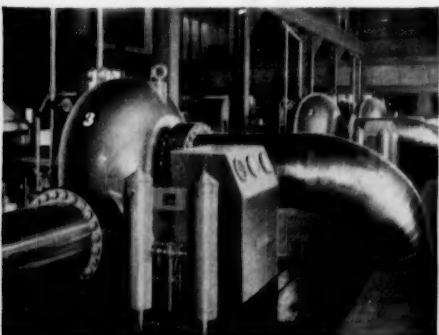
Ammonia Synthesis process utilizes 15,000 psi pressure in converters supplied by the gas compressor in foreground.



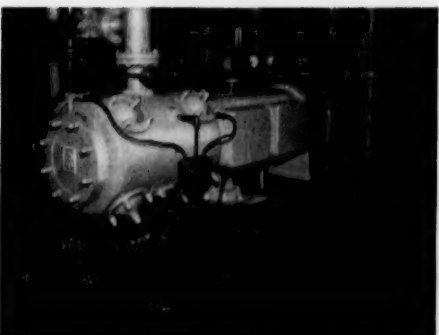
Ethylene refrigeration is the job of this turbine-driven tandem centrifugal compressor. Intake is at 150 degrees below zero.



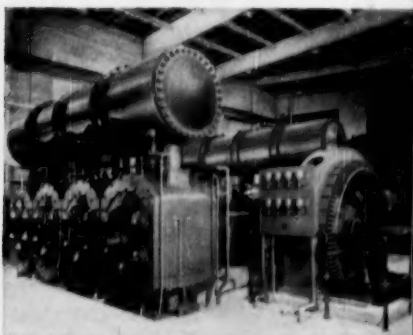
Boosting field gas through a natural gasoline plant into a pipeline is performed by seven 2000-hp gas-engine compressors.



Pipeline station utilizes I-R centrifugal compressors driven by gas turbines to speed natural gas on to marketing areas.



Chlorine Gas is handled safely in a chemical plant by compressors equipped with 'NL' non-lubricated cylinders. Special distance pieces eliminate leakage and corrosion.



Vacuum Pump exhausts air from testing chamber to simulate high-altitude conditions. Piston displacement of this unit is 51,500 cfm.

doing a job similar to yours. The experience they have gained on many other kinds of installation will be a big asset in designing the best compressor for your job. Nowhere else can you get the help of such diversified experience in compressor design.

Your Ingersoll-Rand representa-

tive can help you in working out your compression problems.

Over 1000 types and sizes of compressors

Reciprocating
1/4 to 6000 horsepower
pressures to 35,000 psi

Centrifugal
Capacities to 255,000 cfm
pressures to 2000 psi

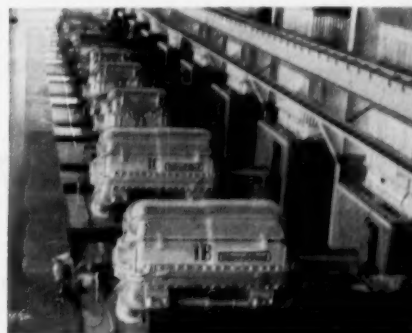
Electric, steam, gas, diesel drives

Ingersoll-Rand

14-678

11 BROADWAY, NEW YORK 4, N.Y.

Inquiry Code Number for This Advertisement-404-5



2000 psig gas for repressuring is furnished by this train of turbo-compressors totalling 60,000 hp. Units are mounted on a pile-supported platform on a lake.

Purifier, Steam

Cleans exhaust steam for return to boiler. (406A)

... LS-Hi-eF purifier cuts cost of power operation by conserving water and steam. Installed in low-pressure steam lines on exhaust side, it re-

moves oil, pipe scale and other impurities so that steam can be returned to boiler.—*V. D. Anderson Co., Cleveland 2, Ohio.*

Purifier, Nuclear

Disposable type. (406B)

... Model XP15 disposable ion exchange nuclear purifier cuts cost of removing dangerous radioactivity.

Unit may be used for cation, anion exchange; mixed-bed demineralizing.—*Permutit Co., New York 36, N. Y.*

Reactor, Continuous

Laboratory size gives data for scale-up. (406C)

... With Experimenter laboratory size reactor, exact physical data for continuous processing in production size equipment can be obtained. Unit consists of cylindrical mixing chambers, each of which contains two mixing impellers separated by a baffle disk. Mixing is intimate throughout

unit and there's no possibility of short circuiting. Additives can be introduced at exactly the correct part of the reaction cycle. You can measure and control exothermic heat released during the course of the reaction.—*Marco Development Co., Inc., Wilmington 1, Del.*

Screen, Process

Easily cleaned. (406D)

... Gyroshaker screen is ideal for use where all points of the screen must be easy to reach for cleaning. It will fit where process requires

minimum over-all height and where highly efficient single screen is preferred to multi-sieve stack.—*Sprout, Waldron & Co., Muney, Pa.*

Screen, Wet

Performs better than vibrating type. (406E)

... Both capacity and efficiency of Dorr-Oliver DSM screen are claimed to be greater than those of vibrating screens. Stationary screen is particu-

larly adaptable to separations in 8 to 48 mesh range. To date, it has worked on wide range of materials.—*Dorr-Oliver, Inc., Stamford, Conn.*

Separator, Liquid

Offers high throughput at low cost. (406F)

... Phasezon liquid separator, based on same principles as Podbielniak multistage extractor, uses only centrifugal separating features of extractor

without countercurrent mixing. Separator can separate any two immiscible liquids.—*Podbielniak, Inc., Chicago 11, Ill.*

Showroom, Centrifugal

Retail style for complete industrial line. (406G)

... Adjacent to testing laboratory, Fletcher Works has retail-type centrifugal machine showroom. In this 1,200-sq.-ft. space, prospective customers may operate centrifugal machinery themselves. Included in showroom are 48-in. Flow-Clean stainless-steel washer-extractor; 40- and 48-in. Whirlwind extractors, Twintainer stainless-steel 50-, 54- and 60-in. automatic extractors; models of Junior and Standard extractors used by textile, chemical, laundry and dry cleaning industries.—*Fletcher Works, Philadelphia, Pa.*



Silos, Storage

Protected by plastic. (406H)

... 60-ft. concrete silos at Pittsburgh Plate Glass Co.'s Cumberland, Md. plant have been coated internally with

protective plastic coating. Coating resists abrasion.—*Tank Lining Corp., Pittsburgh 16, Pa.*

Sublimation System

Purifies solids in system. (406I)

... Wyssmont closed-circuit subliming system processes certain solids which can be purified by entrainer sublimation. Included in the system are the

Turbo-Dryer sublimers, feed hopper, recirculating fans, condensers and reheater.—*Wyssmont Co., Inc., Long Island City 1, N. Y.*

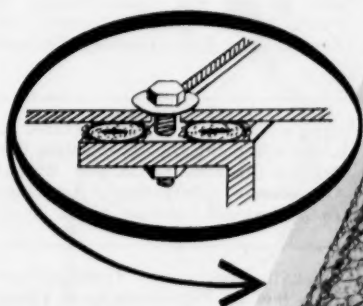
Strainer, Line

Self cleaning. (406J)

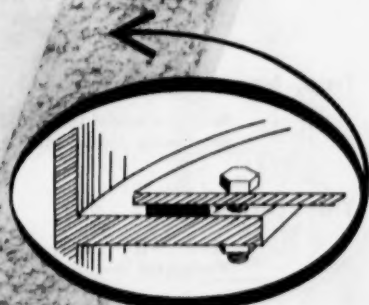
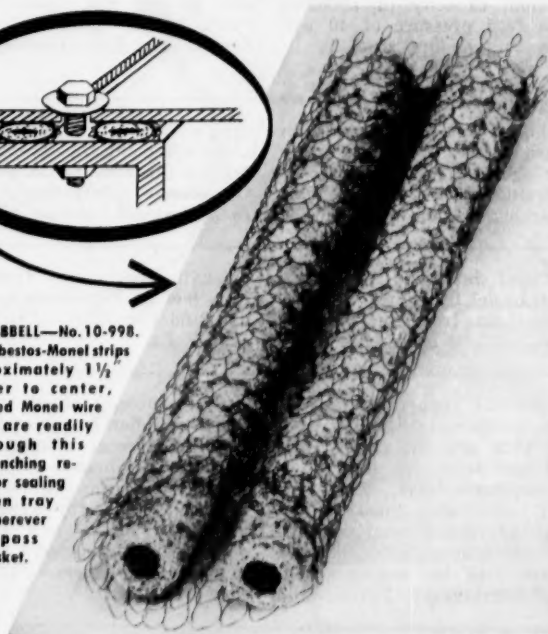
... Line strainer combines large filtering area with self-cleaning action and minimum pressure drop. Capac-

ities available to 20 gpm. for 14-in. line.—*Ripley Mfg. Co., Crowswell, Mich.*

Now—a better seal against leakage across fractionating trays



TRAY-SEAL DUMBBELL—No. 10-998. Two resilient asbestos-Monel strips spaced approximately $1\frac{1}{2}$ " apart, center to center, within a knitted Monel wire sheath. Bolts are readily pushed through this sheath. No punching required. Used for sealing joints between tray sections and wherever bolts must pass through the gasket.



TRAY-SEAL FLAT—No. 10-999. A resilient asbestos-Monel strip approximately $1\frac{1}{16}$ " x 1". Used for sealing tray circumference at supporting ring and wherever bolts do not pass through the gasket.

METEX TRAY-SEAL GASKETING

Pure Asbestos Fiber and Knitted Monel Wire

Proved by more than two years on-stream service in a large East Coast refinery, Metex Tray-Seal Gaskets² have cut leakage previously experienced by as much as 84%. Because it contains no cotton, Tray-Seal showed no charring even at temperatures of 750° F. No replacements were needed at turn-arounds and tightening of a few bolts was the only attention required.

Installed like conventional tapes, these new gaskets have proved more effective than any other gasketing previously used. Bolts between tray sections are readily pushed through the sheath around Tray-Seal Dumbbell—no punching required. Use Tray-Seal Flat around tray circumference and where un-punched gasketing can be used. Tray-Seal can also be furnished on order as formed gaskets for use on risers, caps and where continuous tapes are not practical.

If you are faced with operating and production problems resulting from excessive tray leakage, write for detailed information...no obligation of course.

1. ©International Nickel Co.

2. U.S. Patent #2,761,203 dated September 4, 1956.



7-074-1

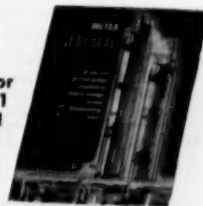
METAL TEXTILE CORPORATION

ROSELLE, NEW JERSEY

METAL TEXTILE CORP. OF CANADA, LTD., HAMILTON, ONTARIO
Representatives in principal cities throughout the world.

SEE US AT CHEM. SHOW—BOOTHS 1018 AND 1020

Send for
New Bulletin T5-1
today!



New Process Equipment

1957 INVENTORY

Test Set, Cyclone

Provides flexibility.
(408A)

... With hydrocyclone test set, you get maximum capacity of about 4 gpm. at a feed pressure of 40 psi. Separation cuts as fine as 5 to 10

microns can be made. Set contains 15- and 30-mm. dia. hydrocyclones of Pyrex-brand glass.—*Liquid-Solid Separations, Ltd., London, England.*

Transducer, Ultrasonic

For large-scale chemical processing.
(408B)

... First high-power magnetostriction type transducer was designed specifically for processing such as emulsification, dyeing, impregnation, degassing, dispersing. Transducer can be

used with liquids at temperatures far above boil point, thus overcoming limitations inherent to barium titanate transducers.—*Acoustica Associates, Inc., Glenwood Landing, N. Y.*

Trap, Iron

Sanitary model for liquid processing lines. (408C)

... Installed in liquid processing equipment, model LS sanitary Ferretap prevents fine iron from contaminating product and tramp iron from

damaging machinery. Three different classes of LS Ferretaps cover a range of liquid viscosities.—*Eriez Mfg. Co., Erie 6, Pa.*

Tray, Distillation

Made with glass, uses Turbogrid design.
(408D)

... Problem of supporting a glass tray in an all-glassed tower has been overcome with new design: glassed steel column with specially constructed Turbogrid trays. Trays are supported inside glass-lined column by bolting glassed Inconel cups to column sidewalls. Teflon-sheathed gaskets are used for sealing. Cups hold four extra-heavy Pyrex-brand

support tubes, each of which is encased in Teflon or polyethylene shield to prevent wear of glass on glass. Small Pyrex-brand tubes are laid across supporting members and are held in position by Teflon or polyethylene spacers and by another extra-heavy sheathed Pyrex tube lying across them.—*Pfaudler Co., Rochester, N. Y.*

Treater, Waste

Counters high BOD waste streams. (408E)

... Organic waste water with biochemical oxygen demand (BOD) greater than 600 ppm. can be treated effectively and economically in Inflico Type 10 Aero-Accelerator. Unit supplements Type AR Aero-Accelerator which handles waste streams with less than

600 ppm. BOD. Units are being used to handle deinking waste, remove essentially all phenolics from waste flow of oil refinery. Others are being considered for thiosulfate and furfuryl waste disposal.—*Inflico, Inc., Tucson, Ariz.*

Literature Available

NEW PROCESS EQUIPMENT

Absorbers.....For absorption of hydrogen chloride and other gases. Produce as much as 20 tons per day 22° Baume acid. Pneumatic automatic information in Catalog Section No. S-7460.
408F National Carbon Co.

Acid Handling Systems.....Graver Vacuum Acid Handling System provides safe and simple method of handling any amount of acid that must be diluted with water. Details upon request.
408G Graver Water Conditioning.

Activated Charcoal Systems.....Comprehensive catalog shows how activated charcoal is used to recover air and solvent, remove odor, purify air, preserve food. Line of equipment discussed.
408H Barnebey-Cheney Co.

Airlocks, Rotary.....Mikro Rotary Airlock can be used at discharge of a pulverizer or dust collector. Can be used on the discharge of a blender or mixer to regulate flow of material. Details in bulletin.
408I Metals Disintegrating Co.

Automation Equipment.....Tools of Automation consist of electric motors, variable-speed drives and controls. Key to production of more goods and services at lower cost. Bulletin A-1555-B.
408J Reliance Elec. & Engrg. Co.

Bellows.....Chemically inert bellows made of teflon have these features: chemically inert, life-long flexibility, outstanding electro-chemical properties. See, "The Best in Teflon."
408K Crane Packing Co.

Bellows.....FLEXON Bellows Design Guide contains information on applications, design considerations, standards for metallic bellows. Details on using bellows included. Catalog 155.
408L Flexonics Corp.

Catalytic Cracker....."Model IV Fluid Catalytic Cracking" describes a continuous, flexible process for converting gas oils and deasphalted stocks to high octane motor gasoline and other distillate products.
408M Esso Research & Eng. Co.

Cement Machinery....."Nordberg Machinery for the Cement Industry," 9-page catalog, covers this machinery; crushing screening, grinding, pyro-processing and power generation. Request your copy.
408N Nordberg Mfg. Co.

Centrifugals.....Tolhurst Batch-Master centrifugal can cut down processing hours and manhours because of its hydraulic unloader and bottom discharge. Full data in Bulletin TC-14-56.
408O Amer. Machine & Metals.

Centrifugals.....AT&M centrifugals are used in separation, dehydration, coating, filtering, impregnation and sedimentation processes. Maximum use of time and space, with safety. "Centrifugal Force."
408P American Tool & Machine.

Centrifugals.....A Reinveid Centrifugal can reduce thermal Dryer requirements 64% over other filtration methods. Capable of handling 1200 gallons per hour of feed slurry. Bulletin RC356.
408Q Heyl & Patterson.

Centrifugals.....When your process calls for liquid-solids separation by centrifugal force, you can do it more economically with the Tolhurst Center-Slung centrifugal. Bulletin TC-14-55.
408R Tolhurst Centrifugals Div.

IF — LIQUID ENTRAINMENT

is your operating problem...



... you can solve it more effectively
and economically with the
new and improved

METEX HI-THRUPUT MIST ELIMINATOR

Proved by innumerable installations in U.S. and foreign refineries, this latest development by the originators of knitted wire mesh entrainment separators:

1. Will remove and return more than 99% of the liquid carryover.
2. Can be operated at 10% higher velocities.
3. Will have $\frac{1}{2}$ to $\frac{1}{3}$ the pressure drop.
4. Gives more complete and rapid drainage of de-entrained liquids.
5. Has $2\frac{1}{2}$ to 3 times longer on-stream effectiveness under build-up of coke.
6. Is lower in cost.

The increased effectiveness and lower cost of these new Metex Hi-Thruput Mist Eliminators is due to two basic improvements in the knitted mesh structure.

1. The size, shape and framing of the openings in the mesh have been changed to reduce stagnation points and promote freer liquid drainage.
2. Wires are repositioned, after crimping, by our Herringbone Fold, thus giving more impingement surface area per pound of wire.

For full information on this latest development in Mist Eliminators (sometimes called entrainment separators, demisters or crinkled wire mesh pads) write for a copy of Bulletin ME-6. Our engineers will be glad to give specific recommendations on any problem on receipt of information on operating conditions and vessel sizes.



METAL TEXTILE CORPORATION ROSELLE, NEW JERSEY

METAL TEXTILE CORP. OF CANADA, LTD., HAMILTON, ONTARIO

Representatives in principal cities throughout the world

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7-247

Literature Available

Centrifugals
Crushers, Gyratory

Centrifugals......Batch-Master offers choice of perforate and imperforate baskets... corrosion-resistant materials... manual unloader if desired. Further information available in Bulletin TC-14-56.
410A Tolhurst Centrifugals.

Centrifugals......All components of the duty cycle are automatic and interlocked for accurate timing of successive operations; loading, discharging, and recycling are completely automatic. Bulletin.
410B Western States Mach. Co.

Centrifugals, Continuous......B-P S Size 48 continuous Centrifugals for centrifuging relatively free-draining crystalline, granular & fibrous materials. Catalog describes Types S, HS, & HF.
410C Baker Perkins.

Centrifugals, Continuous......Maxi-Flex centrifugals easily adjusted for maximum throughput, quality of filtrate and cake. Enables Maxi-Flex to give more speed and efficiency. Bulletin.
410D Tolhurst Centrifugals Div.

Centrifuges......Merco pressure centrifuge unit for continuous-centrifugal separations under pressure conditions. Accomplishes concentration, washing, soluble recovery, classification. Bulletin 2600.
410E Dorr-Oliver.

Centrifuges......Titan Superjector centrifuge periodically ejects sludge automatically while running at full speed, cleans itself completely in ten seconds or less. Request Bulletin 946.
410F Pfaudler Co.

Centrifuges......Sharples Super-D-Canter spans the wide range of particles from very large to those of only a few microns in size. Company makes information available in Bulletin 1254.
410G Sharples Corp.

Centrifuges......High speed dehydrating centrifuge offers external control of variations in flow rate, crystal size & slurry concentration. Permits intermediate treatment of crystals. Bulletin 1257.
410H Sharples Corp.

Centrifuges......12 p. bulletin describes continuous solids discharge centrifuges and the method employed to effect high solids concentration and dryness of solids. For details, Bulletin 1279.
410I Sharples Corp.

Centrifuges......4 p. brochure on 16,000-rpm, 400 ml. laboratory centrifuge discusses specifications, motor and transformer characteristics, portability, applications, self-centering direct drive assembly.
410J Ivan Sorvall, Inc.

Centrifuges......Company offers a free copy of "Modern Centrifuges for Continuous Chemical Processing" with a complete listing of liquid processing centrifuges for many varied uses.
266 *Centrico Inc.

Centrifuges......Automatic self-cleaning units with centrifugal force equal to 7700 times gravity—available in 800, 2000 and 6000 gals. per hour capacities. Request Bulletin 946.
135F *Pfaudler Co.

Chlorinators......19 p. catalog describes a high-capacity chlorinator, a vacuum-type solution-feed gas chlorinator for capacities 60 lbs. to 8000 lbs. of chlorine gas per 24 hours. Catalog 70-15.
410K Fischer & Porter Co.

Chlorinators......V-notch chlorinators, built entirely with corrosion resistant materials, feature a metering and controlling principle—the V-notch Variable-Orifice. Publications 25,100 & 25,110.
410L Wallace & Tiernan.

Chlorine Cell......Chlorine for water purification is produced by the Hering electrolytic chlorine plant according to descriptive 4-page bulletin. Capacities from 100 g./hr. to 1 kg./hr.
410M Epic, Inc.

Clarifiers......12 p. bulletin "The Dorrco Clariflocculator", describes the combination flocculation and clarification mechanism, giving physical characteristics, types, sizes, advantages. Bulletin 6801-R.
410N Dorr-Oliver.

Columns, Alloy......Columns constructed of stainless steel, monel, nickel, etc. Available for fractionating, stripping, absorption, adsorption, extraction and other allied operations. Bulletin 940.
135e *Pfaudler Co.

Classifiers......All classifiers (Rake Type, Spiral, Hydro, are designed to efficiently separate fine particles in specific applications. For information on company's line, request Bulletin CSC-B.
410O Denver Equipment Co.

Classifiers......H & P Cyclones are standard in stainless steel or with rubber-lined aluminum or carbon steel bodies. Capable of handling as little as 8 GPM, with no upper limits. Brochure C-954.
410P Heyl & Patterson.

Classifiers......Sharples super classifier with ultra-sharp cutpoint at high capacity for classifying dry powders gives product recovery of 80% to over 90%. For details request Bulletin 1280.
410Q Sharples Corp.

Cleaning Systems......Bulletin, "The Dorrco Monorake," describes the design, types & sizes, operation & advantages of this mechanism for cleaning rectangular sedimentation basins. Ask for Bulletin 6001-R.
410R Dorr-Oliver.

Compacting Process......Compacting mill densifies fines into flakes. Flakes granulated in roller mill. Final separation made in gyratory screen, 70 to 80% recovery of salable product. Bul. 25C6177J.
410S Allis-Chalmers Mfg. Co.

Concentrators......Roto-vak concentrator features: increased capacity; lower operating cost; simplicity of operation; ease of cleaning; sterilization combined with concentration. See Bulletin 369.
410T Blaw-Knox Co.

Crushers......In most Allis-Chalmers gyratory crushers, size adjustment, compensation for wear, emergency unloading are accomplished by the flick of a switch. Specific product bulletin.
410U Allis-Chalmers Mfg. Co.

Crushers......Free literature on ring crushers, shredders and hammer mills features special purpose crushers used for unusual materials as well as many other models. Request Bulletin 257.
410V American Pulverizer Co.

Crushers......No. 13 Series Crushers are designed for capacities beyond those of lab mills and below those required for large-scale crushing operations. Equipped with rings or hammers. Catalog.
410W American Pulverizer Co.

Crushers......Model WC Crusher... efficient controlled reduction for scores of industries, hundreds of materials. Equipped with rolling rings or hammers. Minimum headroom. Literature.
410X American Pulverizer Co.

Crushers......Gruendler equipment for performance shredding, hogging, secondary grinding and refining of wood, wood wastes, barks and similar organic materials. Request a copy of Bulletin 920.
410Y Gruendler Crusher & Pulv.

Crushers......Hard hitting giant with high speed impeller bars strikes material in suspension... continues to wallop it until it's broken down to the desired size. Full details in Bulletin 854.
410Z Jeffrey Mfg. Co.

Crushers......Line of reduction equipment that includes crushers, roll mills, granulators, and chippers is covered in leaflet that lists outstanding characteristics of each type of equipment.
410AA Frank P. Miller & Son.

Crushers, Cone......Symons Cone Crushers offer greater productivity through more efficient reduction crushing; unequalled output, selective crushing, low operating costs. Full details in Bulletin 247.
410BB Nordberg Mfg. Co.

Crushers, Cone......Symons Intermediate Cone Crushers are efficient in secondary reduction crushing of hard rock, gravel, ores and industrial minerals. Offer long life of heavy duty service. Bulletin 236.
410CC Nordberg Mfg. Co.

Crushers, Gyratory......"One-man, one-minute" product control, a feature of Allis-Chalmers primary, secondary & tertiary gyratory crushers, cuts setting changing time from hours to seconds. Literature.
410DD Allis-Chalmers Mfg. Co.

Crushers, Gyratory......Bulletin 1126 contains illustrations, cross-section dwgs., complete specifications and features of Traylor TC gyratory crushers. Tables of sizes and approximate capacities.
410EE Traylor Engrg. & Mfg. Co.

* From advertisement, this issue

Literature

Continued on page 414

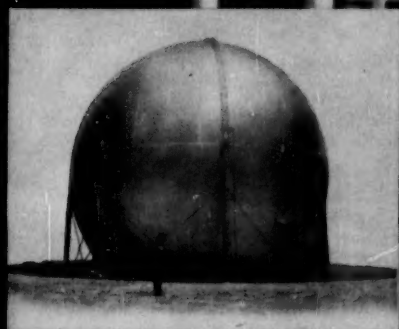
PLATE FABRICATION AND ERECTION

of vessels, tanks, towers, odd and intricately designed
chemical equipment...to any size...of any material: steel, aluminum,
stainless, stainless-clad, special alloy, etc.

HAMMOND IRON WORKS has a background of more than 50 years' successful
service to the chemical industry. With its 5 plants
and its know-how, based upon experience, no job
is too large or too small for Hammond.

Catalog 54B illustrates the Hammond story

... write for your copy.

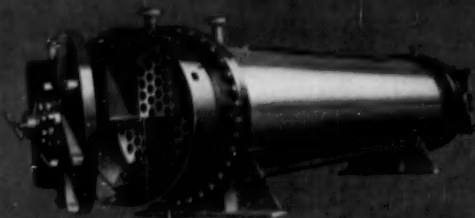


HAMMOND IRON WORKS

WARREN and BRISTOL, PA. • PROVO, UTAH
CASPER, WYOMING • BIRMINGHAM, ALABAMA

Sales offices throughout the U. S. A.; licensees and sales
offices in many foreign countries including Argentina, Bel-
gium, Brazil, Canada, Columbia, Egypt, England, France, Haiti,
Italy, Japan, Mexico, Netherlands, Peru and West Germany.





P-K LEVER-LOCK DOOR

Get 5-second access to any type of straight tube heat exchangers with a P-K Lever-Lock Door. This means substantial savings in time and labor for any processor who must clean and inspect heat exchangers regularly.

Available in all alloys, the basic feature of the "Lever-Lock" door is load equalization of supporting members. It is extremely rugged, capable to operate horizontally or vertically and requires little or no maintenance.

Lever-Lock is a registered name

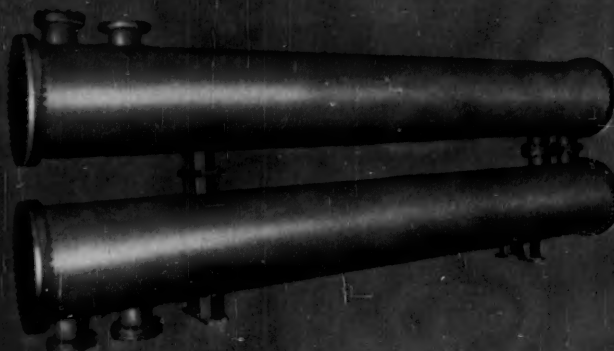


P-K PLOT PLANTS

Made in 5 to 60 gallon capacities, Standard P-K Distillation Plot Plants are ideal for testing, sampling and even for small production runs. In addition they can help determine scale-up factors from lab to plant... determine costs... improve quality control procedures, and all the other benefits that are gained by proving out laboratory results before production is started.

STANDARD P-K WATER-TO-WATER INTERCHANGER

This process exchanger is typical of the types that P-K designs and fabricates—this particular unit consists of two sections in series. The exchanger is of fixed tube sheet design, with tube sheet and shell integral. End channels covering plates are removable. Process exchangers can be fabricated in most commercial metals and meet practically all code requirements.



P-K STANDARD DRY EXPANSION FREON CHILLER

A complete range of dry expansion type chillers is available. The unit illustrated is equipped with standard cork type insulation and covered by a galvanized jacket. A wide variety of materials and designs are available for this standard "U" tube cooler.



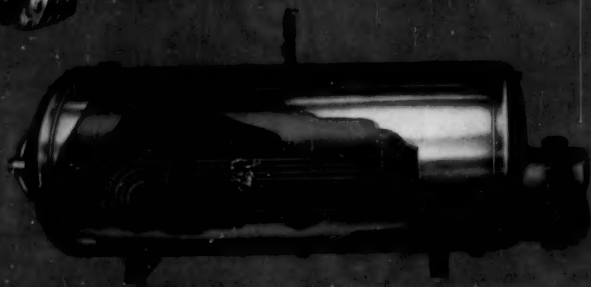
P-K INSTANTANEOUS HEATERS

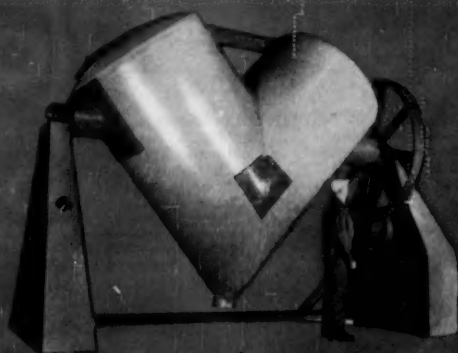
This standard exchanger is ideal wherever there is a demand for a continuous supply of hot liquid and the heating medium is constant. Units are available for either straight or "U" tube design.



COPPER-LINED STORAGE WATER HEATER

This storage type water heater is the most efficient and economical vessel for supplying pure, rust-free process water. Other standard storage water heaters are available with Pre-Krete lining, stainless, clad and copper alloy. The standard "U" tube heating element can utilize steam or boiler water as the heating medium and can be fabricated of similar materials.





"TWIN-SHELL" PRODUCTION BLENDER

P-K makes three "Twin-Shell" production models to meet practically all blending functions. There is a model for standard precision blending, one for intensive blending and a model where exact quantities of liquids are introduced and inti-

imately blended into dry solids.

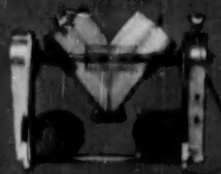
All Production Models are based on P-K's radically different "Twin-Shell" blending concept that puts off in fact, uniform blends . . . fastness, maximum good operation . . . safety, easy discharging.

"TWIN-SHELL" LAB BLENDER

P-K laboratory blenders employ the radically new concept that now makes precision blending possible — a design that insures perfect dispersion of critical formulations regardless of the material characteristics. Lab blenders permit pre-testing of a formulation before production and are invaluable for research. All of the lab blender types are available in larger production sizes.

Results from lab blending can be duplicated in production sizes up to 500 cu. ft. capacity or more.

Lab blenders are made in standard, yoke, intensifier and liquid-solid types—in capacities that vary from 1 qt. to 15 gals. according to type of blender.



Did you know...

that P-K designs and fabricates all of these types of chemical and process equipment?

Did you know that P-K comprises various divisions?—such as a Refrigeration and Air Conditioning section manned by thermal engineers who design and rate all types of shell and tube exchangers for either standard or special applications. In addition, P-K is staffed to thermally design and fabricate every type of process heat exchangers—for any service—in any commercial models, and for most code requirements.

Did you know that in addition to the new highly popular "Twin-Shell" blender, P-K maintains a specialized group of mixing and blending technicians who are constantly studying and developing more efficient types of blenders—that P-K pioneered and has conducted for many years a "Customer-Service" laboratory, that aids in selecting just the right type of blender for your process? (without product prejudice, we make

them all). In addition to the "Twin-Shell", P-K fabricates a vacuum dryer blender and various types of "packaged" pilot plants—so versatile that they meet practically all requirements for research and small scale production operation.

Equally important to you as this wide variety of process equipment, is the reputation of consistently high quality which P-K has enjoyed for more than 75 years. P-K has pioneered in developing the latest accepted designs and fabrication techniques. Your choice of P-K equipment is an assurance that you will have the finest—at the lowest possible cost—delivered in the shortest possible time.

So the next time you are contemplating new equipment, consider P-K. You'll appreciate the way we meet all your requirements.

All P-K "Twin-Shell" blenders are patented and the name registered.

Patterson Kelley

Chemical and

Process Division

P-K "Twin-Shell" Blenders • P-K Lever-Lock Doors • P-K Vacuum Dryer Blenders • P-K Heat Exchangers
P-K "Packaged" Pilot Plants • P-K Refrigerant Condensers • P-K Cone and Ribbon Blenders

FOR MORE INFORMATION: P-K Bulletin 15 describes most of the products illustrated—in addition, it contains tabular material relative to sizing, etc. To obtain this reference bulletin, contact your local P-K sales engineer or write

The Patterson-Kelley Co., Inc., 1811C Nansen Street, East St. Louis, Mo. For "Customer Pre-Testing" information—on blending—contact Russell Butler, who will be pleased to arrange a product demonstration of your convenience.



New Process Equipment

1957 INVENTORY

Literature Available

Crushers, Gyratory—
Dryers

Crushers, Gyratory.....TF gyratory crusher which produces a big volume of fine product is covered in Bulletin 127. Outstanding features outlined. Table of sizes and approximate capacities.

414A Taylor Engrg. & Mfg. Co.

Crushers, Jaw.....Forced-feed jaw crushers have cast steel frame, manganese jaw and cheek plates, large diameter shafts, heavy-duty roller bearing in bumper. Full details in Bulletin C12-B12.

414B Denver Equipment Co.

Crushers, Jaw.....Eight models, range from 2 x 6 in. jaw opening to 12 x 26 in. Capacities to 30 tph. All except two smaller sizes operate on double cam principle—crush twice per energy unit. Bulletin 062.

414C Sturtevant Mill Co.

Crushers, Laboratory.....Bulletin 1677 describes laboratory crushers used for crushing samples and making pilot runs on a wide variety of materials. Capacities 600-2,000 lb. per hr. Typical installations.

414D American Pulverizer Co.

Crushers, Rotary Fine.....Five models available. Reduce 3 to 8 in. material to 1/4 to 1 1/4 in. sizes. Capacities up to 30 tph. Smallest model has 6 x 18 in. hopper opening; largest 10 x 30 in. Bulletin 063.

414E Sturtevant Mill Co.

Crushers, Sample.....Does the job quickly and efficiently. There is no loss of moisture content in sample. Any amount—from 0 to 20%—in one operation. Company makes literature available upon request.

414F American Pulverizer Co.

Crushers, Sawtooth.....Precision built heavy duty Sawtooth Crushers give positive results in reducing lumps of material to a desired size. Rugged construction, wide range of adaptability. Bul. 130.

416-7f Sprout-Waldron Co.

Crushers, Single Roll.....Data sheet gives drawings, construction features and specifications of Model 104 single roll crusher. Compact, inexpensive to install and operate, versatile. Bulletin 116-A.

416-7g Sprout-Waldron Co.

Crushing & Grinding.....Sturtevant laboratory machines can expose all crushing or grinding parts for thorough cleanouts in a matter of seconds because of hinged access doors. Ask for Bulletin 067.

414G Sturtevant Mill Co.

→ Want more information on any of these items? Just write its code number on one of the postcards inside the back cover, then mail it to us. It's that easy now.

Cutters.....Bulletin describes Taylor-Stiles precision type General Purpose Cutters. Illustrates and describes Series 100 and 200, giving construction features for several models. App. 212.

414H Taylor, Stiles & Co.

Cutters.....Bulletin on Taylor-Stiles "Little Giant" dicing cutters or pelletizers. Three types, Light duty Series 100, Heavy duty Series 200 & Series 700 for pelletizing plastics for molding. App. 213.

414I Taylor, Stiles & Co.

Cutting Machines.....4 p. Bulletin AB 457 gives specifications, descriptions, illustrations, cutting times and special features of a wide and varied line of abrasive cutting machines. Request your copy.

414J Beaver Pipe Tools, Inc.

Deaerators.....Cochrane publication describes a deaerator design that eliminates tubular vent condensers without impairing efficient purging of noncondensable gases. Publication 4651.

414K Cochrane Corp.

Deaerators.....Publication describes advantages of cold water deaerators; reduces or eliminates corrosion, deaeration without heating or cooling, etc. and principles of operation. Pub. 4653.

414L Cochrane Corp.

Deaerators.....Six bulletins cover: why and how of deaeration; application of the Jet-Tray, Tray Type, Atomizing Deaerator, Surface Type Deaerating Hot Water Heater, Cold Water Deaerator.

414M Cochrane Corp.

Dehumidifiers.....Engineering information contained in Bulletin R-11B helps the potential user select the correct standard Desomatic Driline pressure dehumidifier to remove moisture from air or gases.

414N Desomatic Products.

Dehydrators.....Continuous, automatic drying of compressed air, process gases and liquids. Gases include carbon dioxide, carbon monoxide, hydrocarbons, hydrogen, inert gases. Bul. SC1013.

414O Selas Corp. of America.

Deionizers, Water.....Company's water deionizer removes inorganic impurities in water, can deliver up to 60 gpm of finished water with less than 0.10 ppm dissolved solids. Fact File Folder.

414P H. M. Mueller Corp.

Demineralization.....Covers all phases of demineralizing, discusses the advantages and disadvantages of this process for power plants, considers trends and applications. Reprint T-140.

414Q Graver Water Conditioning.

Demineralizer, Water.....Technical reprint T-153 discusses the role that demineralizer subfill plays in reducing costs of operating a demineralizing system. Details on rinse requirements.

414R Graver Water Conditioning.

Demineralizers.....Company offers dual column demineralizer with flow rate of 2500 GPH and fully automatic regeneration system. Further information on ULA-2500 unit on request.

414S Penfield Mfg. Co.

Demineralizers.....Packaged demineralizers are available in mono-column and multi-column types, with flow rates from a few gallons per hour to 10,000 G. P. H. Spec. sheets.

426 Penfield Mfg. Co.

Demineralizers, Water.....All-plastic water demineralizers that operate by ion exchange are described in a new bulletin. Units are virtually indestructible and avoid internal corrosion.

414T Enley Products, Inc.

Demisters.....Bulletin on Yorkmash Demisters, for the separation of liquid and vapor phase materials. Engineering & installation data, chemical & petroleum applications, etc. Bulletin #18.

414U Otto H. York Co.

Digester, Continuous.....Bulletin PC-20 describes and illustrates construction and operation of the Pandia Chmi-Pulper continuous digester for pulp mills. Sizes and capacities are included.

414V Black-Clawson Co.

Disintegrators.....Bulletin for the food & chemical process industries, deals with applications of disintegrators to fine or coarse disintegration and/or mixing of wet dry materials. Send for Bulletin R-507.

414W Rietz Mfg. Co.

Dryer Cylinder, Air.....Material: carbon steel—Thickness: head, 2"-Shell 2 1/2"—Design pressure: 3200 psi—Hydrostatic test pressure: 5400 psi—Design temperature: 450°F. For complete details, see bulletins.

414X Downington Iron Works.

Dryer, Multi-Louvre.....Multi-Louvre dryers and how they work are described in 16-page book 2609. Typical layouts, dimensional data and a 2-page psychrometric chart aid your evaluation.

414Y Link-Belt Co.

Dryer, Rotary.....How granular solids are dried without loss of fines is described in Bulletin RDB-101 on the Carpco Dual-Flow dryer. Unit comes complete with all auxiliary equipment.

414Z Carpco Mfg. Co.

Dryer, Spray.....All drying needs are reported satisfied with a pilot plant spray dryer described in Bulletin 431. Easy addition of accessory equipment lends versatility to unit.

414AA Proctor & Schwartz.

Dryer-Coolers, Rotary.....This equipment is particularly applicable in drying or cooling heavy or high moisture content materials. Dries with parallel flow and cools with counterflow. Data.

414BB Allis-Chalmers Mfg Co.

Dryers.....Davenport makes pressing, drying and cooling equipment, continuous dewatering presses, rotary dryers (steam tube, hot air, and direct fire), atmospheric drum dryers, etc. Catalog "A".

414CC Davenport Machine Corp.

* From advertisement, this issue

Literature

Continued on p. 418

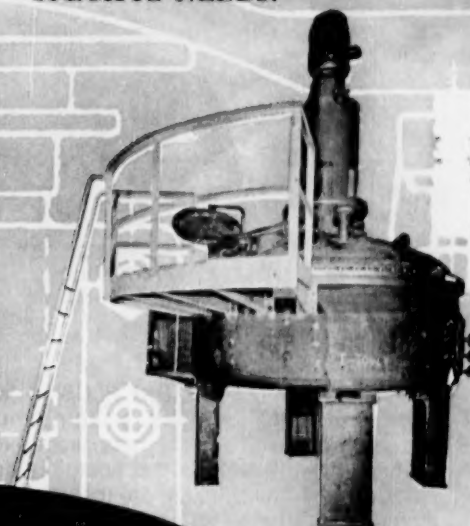
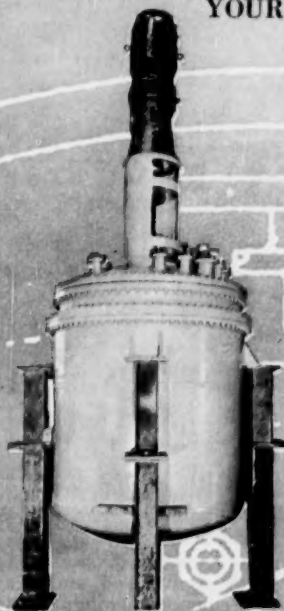
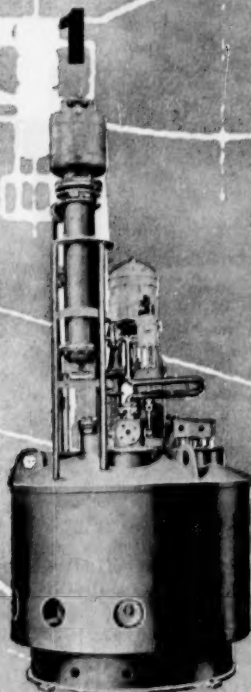
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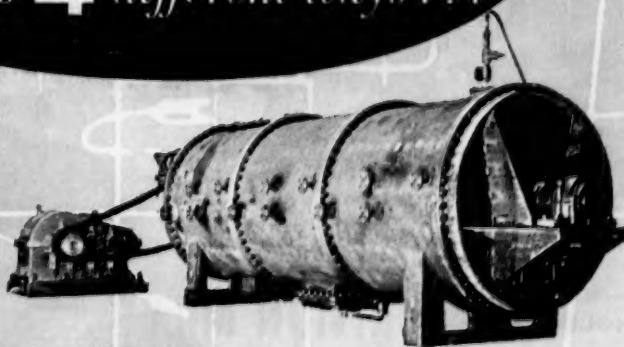


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CHEMICAL PROCESS DIVISION
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Apply SPROUT-WALDRON'S *Big Plus* to your processing problems!



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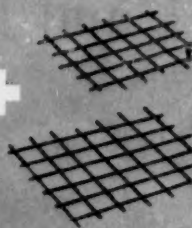
grinders,
cutters,
crushers



mixers
and
blenders

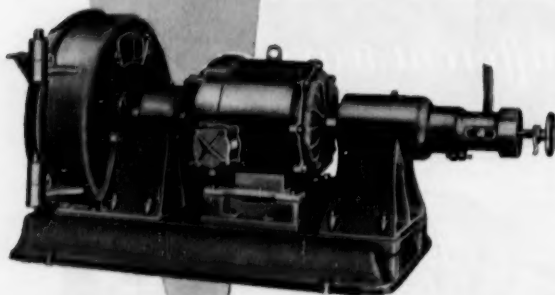


pelleting
equipment



size
classification
equipment

SPROUT-WALDRON'S BIG PLUS in facilities, abilities, and experience add up to a formula that has solved some of the toughest processing problems. Put it to work for you! Get complete details now by requesting information on the type of equipment you need. The machines described and listed here are only a few of the wide variety designed and built by Sprout-Waldron. Request bulletins now!



SPROUT-WALDRON

SINGLE DISC ATTRITION MILLS

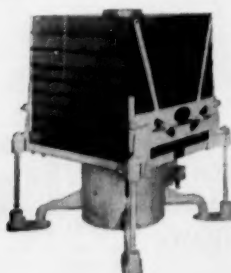
These single runner mills, with many plate designs and plate settings, are among the most versatile size reduction units available. They defiberize, granulate, pulverize, and refine. Variations in product characteristics often are obtainable with the simple turn of a hand-wheel. Maintenance costs are unusually low. Construction: cast iron, stainless steel, carbon steel. Plate sizes: 12" to 42". 5 to 500 HP. Request Bulletin 143.

SPROUT-WALDRON PNEU-VAC

PNEU-VAC is one of the most modern negative-pressure pneumatic systems available . . . has proved itself in hundreds of installations.

It conveys, loads, and unloads granular, pulverized, and flaky materials in tremendous volumes without exterior dusting . . . without intercontamination or infestation of products . . . without handling losses. The unit is self-cleaning and can be made to cool, to heat, to aerate, to dry. Request Bulletin 18-E.

For small and medium size bulk material handling requirements, the Sprout-Waldron AIRO-FLOW (Bulletin 154-B) and the PORTAFLOW (Bulletin 126) are available.



RICHMOND SPROUT-WALDRON Gyro-Whip SIFTERS

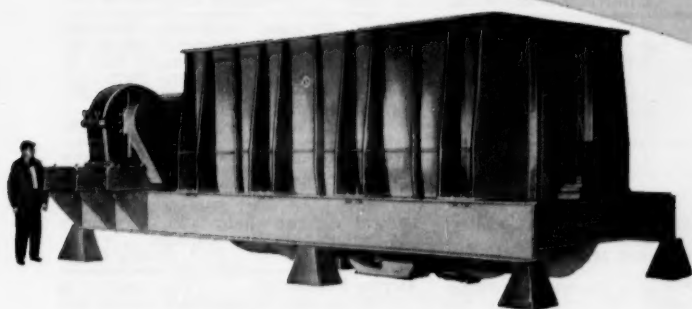
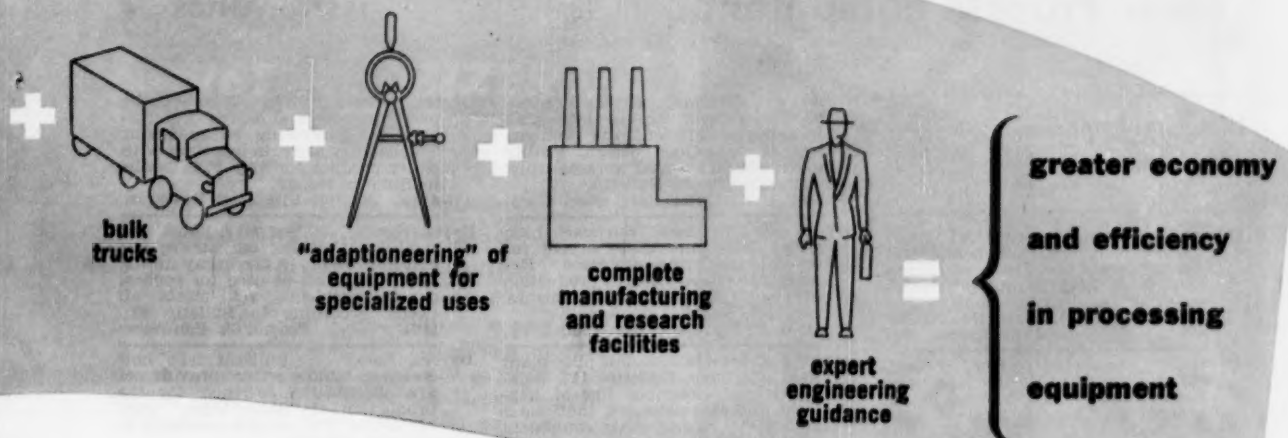
Amazingly compact, yet big in output, Gyro-Whip Sifters save floor space. Simplified design reduces maintenance and cleaning time and makes possible the most rigid standards of sanitation.

The average Gyro-Whip is only 48" high, requires only 3½' x 3½' floor space, and operates on only ¼ HP. Bolting areas range from 47.5 up to 95 sq. ft.

Sizes range from 3-sieve to 20-sieve. Can sift from 2 mesh up to 325 mesh. Stainless steel and wood construction. Installation can be on stream. Request Bulletin 135-A.



For best end results, start with . . .



SPROUT-WALDRON

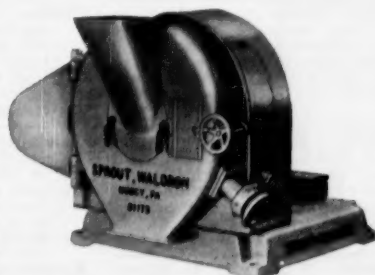
Horizontal BATCH MIXERS

They're ideal for the rapid, intimate mixing of small percentages of a number of critical ingredients with a large bulk of basic material or filler. They load, blend, and discharge amazingly fast . . . are clean, dustless, sanitary. Available with double ribbon agitators or with ribbon and paddle combinations that are easily removed. Discharge outlets may be at either end or in the center. A wide variety of gate styles and accessories for cooling, heating, and drying are available. Construction: carbon steel, stainless steel, and alloy. Sizes: from 1 cu. ft. up to 1700 cu. ft. Request Bulletin 128.

SPROUT-WALDRON

PELLET ACE

PELLET ACE makes practicable the pelleting of many different types of materials in tremendous volumes with economy. Through densifying materials into pellets, this equipment can save in many ways. It reduces or eliminates dusting . . . makes many materials more free flowing and easier to bin, sack, and package . . . reduces storage space . . . makes materials easier to dry and cool . . . and adds sales appeal to end products. Smaller model also available. Request Bulletin 182.



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SPROUT-WALDRON'S

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LIBRARY

Build a reference library of the equipment you now need or may need in the future. All or any number of the bulletins listed below can be obtained without charge. Write direct or use convenient coupon in back of this book.

- Airo-Flow (Pneumatic Unloading Unit) — 154-B**
- Attrition Mills, Double Runner — 133**
- Attrition Mills, Single Runner — 143**
- Bulk Materials Handling — 149**
- Conveyors, Screw — 83**
- Conveyors, Slider Board Belt — 175**
- Coolaire Pellet Cooler and Dryer — 119**
- Crushers, Sawtooth — 130**
- Crushers, Single Roll — 116-A**
- Hammer Mills, Heavy Duty — 1-B**
- Knife Cutters — 141**
- Mechanized Storage Units — 164**
- Mixers, Continuous Double Agitator — 131-A**
- Mixers, Horizontal — 128**
- Mixers, Vertical — 192**
- Pellet Ace — 182**
- Pneu-Vac — 18-E**
- Portaflow (Pneumatic Unloading Unit) — 126**
- Processing Equipment (Complete Line) — 178**
- Roller Mills — 153**
- Rotaircool Pellet Cooler, Dryer, and Conveying System — 177**
- Rotary Vane Feeder Valves — 24-B**
- Shakers (Gyro-Shakers) — 160**
- Sifters (Gyro-Whip) — 135-A**

Literature Available

Dryers—
Eliminators, Mist

Dryers......Available in several types: direct heat, indirect heat, and steam tube. Let Deco engineers help solve your drying problem—no dryer problem too small or too large. Request Bulletin No. D4-B2.
418A Denver Equipment Co.

Dryers......Modern dryers of the flash, spray, tubular and drum type have been built for more than 300 plants according to bulletin received from German manufacturer of this equipment.
418B Karl Fischer.

Dryers......Offer a variety of dryer models to meet all problems. Designed to dry air, gases or liquids to sub-zero dew points at low cost. Constructed of quality materials. Details in Bulletin D-100.
418C C. M. Kemp Mfg. Co.

Dryers......Help solve problems of drying air or other gases. Offer advantages; simplicity of operation and maintenance; low installation cost and minimum maintenance expense. Bulletin D-27.
418D C. M. Kemp Mfg. Co.

Dryers......Compact machine introduces dry, heated air through ever-changing channels reaching entire surface of every particle. Stratification and segregation prevented. Request a copy of Book 2511.
418E Link-Belt Co.

Dryers......Company offers a freeze drying brochure which fully describes and illustrates their seven types of dryers in all price ranges along with 50 odd accessories. Bulletin FD.
418F E. Machlett & Sons.

Dryers......Instrument air dryers are dependable, require very little attention. They are used in pipe lines, natural gasoline plants, and refineries for air fed to instruments and motors. Bul. 223-A.
418G Pittsburgh Lectrodryer Co.

Dryers......Lectrodryers can dry air and gases in volume to dewpoints below -100°F.—can drop relative humidity lower than 10%. "Because Moisture Isn't Pink" describes drying installations industries.
418H Pittsburgh Lectrodryer Co.

Dryers......Lectro-dryers can dry air & gases in volume to dewpoints below -100°F.—can drop relative humidity lower than 10%. Booklet describes machines & how industries use them.
418I Pittsburgh Lectrodryer Co.

Dryers......Company offers booklets with authoritative data on dryers: "The Moisture in Our Atmosphere," "Vapor Barriers for Dehumidification," "The Measurement of Water Vapor in Air."
418J Pittsburgh Lectrodryer Co.

Dryers......Full line pressure reactivation, purging eliminated, longer absorbent life, no moving parts, simple design, all air or gas entering dried without loss. Complete details in Bulletin 16.0.81.
418K J. F. Pritchard & Co.

Dryers......Standard Hersey Dryers handle difficult drying jobs with trouble-free, efficient and economical service. Good design, quality materials and skilled workmanship. Standard Hersey Bulletin.
418L Standard Steel Corp.

Dryers......Describes "Surface" high speed, low-temperature dryers for continuous drying processes. Replace batch operation in production of chemicals, pigments, varnishes, etc. Bul. K-156.
418M Surface Combustion Corp.

Dryers & Calciners......For pilot plant work, 12-page Bulletin 117 illustrates and describes line of gas-fired and steam-heated continuous rotary dryers and other equipment of this type.
418N C. O. Bartlett & Snow Co.

Dryers, Conveyor, Vibrating......Catalog describes Jeffrey conveying equipment. Jeffrey engineers will help you with your processing-conveying problem, drying, heating, cooling, screening. Cat. 860.
418O Jeffrey Mfg. Co.

Dryers, Rotary......The Davenport rotary hot air dryer is of stainless steel construction. Dryer is installed in one of the large processing plants, drying wheat gluten. Request Catalog "A".
418P Davenport Mach. & Foundry.

Dryers, Rotary......"Davenport" Steam Tube Rotary Dryer reduces the moisture from wood chips prior to making them into Chip Board. Company makes information available in catalog.
418Q Davenport Mach. & Foundry.

Dryers, Rotary......Drying system for treatment of sewage sludge and industrial waste is described in 4 p. bulletin. It features 11 illustrations of the drying system including the rotary dryer itself.
418R Standard Steel Corp.

Dryers, Rotary......Deliver top production, exacting performance, greater profits. Tells how Standard-Hersey has aided manufacturers in solving their dryer problems in 12 n. Bulletin.
418S Standard Steel Corp.

Dryer, Rotary Steam......A dryer to adjust the moisture content of grains, minerals and non-sticky granular materials is described in bulletin 457. Typical capacities and dimensions are given.
418T V. D. Anderson Co.

Dryers, Spray......Cost-cutting features of Bufovak spray dryer: high recovery of solids, low initial cost, low cost of operations, easy to clean, low maintenance cost. For details, Bulletin 373.
418U Blaw-Knox Co.

Dryers, Spray......Bulletin 41 "Spray Dryers for the Ceramic Industry" tells how this equipment is applied to the drying of ceramic slips. The advantages offered by spray dryers are explained in detail.
418V Bowen Engineering, Inc.

Dryers, Spray......Dryers to meet your requirements for large tonnage custom spray drying, small and large scale test runs and batch testing. Save through Nerco-Niro service. Bul. 232.
418W Nichols Engrg. & Research.

Dryers, Spray......Nerco-Niro sets the pace in design and drying performance for processing requirements. You can dry more, in less time, with closer product control. Full details in Bulletin No. 226.
418X Nichols Engrg. & Research.

Dryer, Spray......For pilot plant and semi-works drying operations, you can now invest in one spray drying unit which can be used for general drying problems, yet meets all needs, according to Bulletin 431.
418Y Proctor & Schwartz.

Dryers, Spray......Bulletin tells how Swenson soluble coffee spray dryers are specifically designed for the production of "flavor-laden" soluble coffee. Full details available in Bulletin No. 5611-1.
418Z Swenson Evaporator Co.

Dryers, Vacuum......Faster, uniform heat transfer plus rapid vapor removal... means today's best in vacuum drying with the Patterson Conaform. Full details made available in Bulletin No. 5611-1.
418AA Patterson Foundry & Mach.

Dryers, Vacuum, Rotary......Company offers Catalog 720 on "Vacuum Drying" and Bulletin 640 on how the Stokes Advisory Service and Laboratory can help you. Company makes bulletins available.
418BB F. J. Stokes Corp.

Drying Equipment......Your product is dried, ground, classified, cooled and conveyed to storage in a single integrated unit—an Imp Mill, a Roller Mill, or a Cage Mill. Send for Raymond Bul. No. 82.
418CC Combustion Engineering Inc.

Drying Equipment......Bulletins on drying and dehumidifying illustrate air conditioning cabinet and drying installations including sicative coatings, paper, plastics, etc. Buls. 88 and 112.
418C *Niagara Blower Co.

Drying Systems, Flash......Means for handling materials in which drying is combined with pulverizing, or with mild disintegration, or followed by cooling & conveying product to storage. Catalog 82.
418DD Raymond Div.

Ejectors, Steam Jet......The steam jet ejector is the ultimate in mechanical simplicity, consisting of only 3 basic parts—a steam nozzle, a suction chamber & a venturi-shaped diffuser. Bulletin 9013-A.
418EE Ingersoll-Rand Co.

Eliminators, Mist......How to solve many liquid entrainment problems in scrubbers, absorbers, evaporators, knockout drums, cracking towers is explained in 16-page Schuylert manual.
418FF Schuyler Mfg. Co.

Equipment, Centrifugal......Duplicate any batch centrifugal, low fixed unloading speed, loading & unloading speed can be changed by operator. Write for bulletin & available data.
117 *Amer. Machine & Metals.

* From advertisement, this issue

Literature

Continued on p. 422

The Fluid Energy



**Grinds more products
to finer particle size
with greater uniformity**

Superior products that command premium prices are produced in the "Jet-o-mizer"—the mill that grinds to the narrowest classification over the broadest range of particle sizes—that produces the highest product uniformity—and at a cost that will surprise you.

We invite you to see what the "Jet-o-mizer" can accomplish for your product, and to compare the results with ANY OTHER FINE GRINDING METHOD!

- Produces particles as low as $\frac{1}{4}$ micron average—or "coarse grinds" to -200 mesh—or to any in-between size.
- Grinds with NO oversize and MINIMUM under-size at the "coarse" end—or, can produce better than 99% below 3 microns!
- Operates continuously, for any particle size—with no rehandling.
- Insures unsurpassed product uniformity by maintaining perfectly duplicated processing conditions—no batch blending.
- Adjusts for optimum grinding conditions—maximum flexibility—greatest range of products.
- Accomplishes other physical or chemical operations while grinding—oxidation, reduction, coating, dehydration . . .
- Protects product purity—NO pickup of metal with ordinary materials—negligible contamination with abrasive materials especially with the use of newly developed ceramic and alloy liners.
- Available in laboratory sizes and production models to 8000# /hr.
- High product recovery with patented Jet-o-clone collectors.

Jet principle grinds with air or steam as grinding fluid—no moving parts—no heat from grinding—low maintenance.

Investigate our record of success in grinding chemicals, pigments, minerals, metals, ceramics, drugs, foods, plastics, abrasives, carbonaceous materials, insecticides, and many others.

Investigate our facilities for product testing and custom grinding.

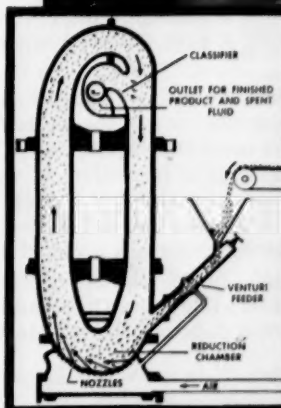
Investigate the extra profit possible with "Jet-o-mizing"!

Send for our new bulletin describing "Jet-o-mizers" and "Jet-o-clones."

FLUID ENERGY PROCESSING & EQUIPMENT COMPANY

Richmond & Norris Sts., Philadelphia 25, Pa.
(Formerly known as the Wheeler-Stephano Mill)

CHEMICAL ENGINEERING—Inventory Issue 1957



This is one of a battery of fourteen Fluid Energy Mills in the plant of a large talc producer in operation continuously for ten years.

Inquiry Code Number for This Advertisement-419



One of the world's two largest rotary-disk contactors is shown here in B-L-H's Eddystone Division fabricating shop. As on all Baldwin work, only qualified welders were employed.

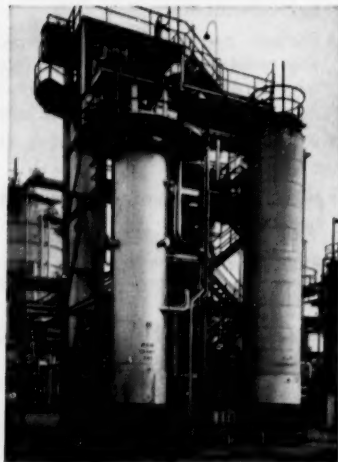
Baldwin fabricates world's biggest rotary-disk contactors

Baldwin-Lima-Hamilton's Eddystone Division, under contract with C. F. Braun and Company, engineers and constructors, recently built two 60-in. rotary-disk contactors, largest in the world. Of all-welded construction, both are over 60 ft. tall. They are used to remove sulfur compounds from natural gasoline and heavy naphthas produced in the crude oil distillation unit at the Tidewater Oil Co.'s Flying A Refinery near Delaware City, Del.

The enormous size of these structures was the source of the main fabrication problem. However, by using 100-ton Worthington drive rolls, Baldwin was able to position the vessels in welding. A huge 150-ton overhead crane moved them from place to place.

Both manual shielded metal arc and automatic submerged metal arc welding processes were employed, 95% joint efficiency in the welds being obtained. Bending, tensile and shear tests were conducted on test plates. The two vessels were subjected to Cobalt 60 radiographic inspection as well as magnetic particle inspection and were stress relieved at 1100°F in Baldwin's huge furnace. After being statically balanced the shafts were installed in the structures. Drive gears were then mounted and the contactors actually operated right in the shop.

These vessels are excellent examples of the kind of fabricating that only a shop with the superb facilities of B-L-H's Eddystone Division could accomplish. For a copy of our illustrated Weldment Bulletin 7001, write to B-L-H Corporation, Philadelphia 42, Pa.



In operation at Tidewater Oil's Delaware refinery, these two rotary-disk contactors, which are of all-welded construction, are the largest in the world.

BALDWIN · LIMA · HAMILTON

Eddystone Division

Philadelphia 42, Pa.

Hydraulic turbines • Weldments • Dump cars • Nonferrous castings



CLEAN (*99.9% plus) SEPARATION * with YORKMESH DEMISTERS®

(ENTRAINMENT SEPARATORS·MIST-ELIMINATORS)

YORKMESH Demisters are used in new or existing equipment to improve product quality, avoid losses and increase thruput capacity. In thousands of successful installations, Yorkmesh Demisters have proved to be the superior method for entrainment control. Available in all usual materials of construction.

Practical, Efficient and Economical SOLVENT EXTRACTION with YORK-SCHEIBEL LIQUID-LIQUID EXTRACTORS

YORK-SCHEIBEL patented multi-stage extraction columns are manufactured in all sizes, from small laboratory models to the largest production units. YORK engineers with years of experience in solvent extraction are prepared to recommend or develop the best design for your conditions and requirements.

*Literature Available from the
York Technical Library*

- ☐ Bltn. #21 - Clean Separation between vapor and liquid with Yorkmesh Demisters. General description of entrainment separators and mist eliminators, engineering data, etc.
- ☐ Bltn. #1001 - A case study of the capacity increase obtained by the use of a Yorkmesh Demister in a refinery vacuum tower.
- ☐ Bltn. #1005 - Case studies on decreasing compressor maintenance problems by the use of Yorkmesh Demisters in compressor suction drums.
- ☐ Bltn. #23 - General description of separator vessels employing Yorkmesh Demisters for removing entrained liquids from steam, gas, and chemical vapor streams.

- ☐ Bltn. #24 - York-Scheibel extraction equipment. General description of efficient multi-stage extraction columns for performing simple counter-current and fractional liquid extraction operations.
- ☐ Bltn. #561 - Performance of an Internally Baffled Multi-stage Extraction Column. Horizontal baffles together with mechanical agitators gives columns having very low height equivalent per theoretical stage values.
- ☐ Bltn. #571 - Bench Scale Liquid Extraction Techniques. Describes basic techniques and equipment employed in the York Laboratory for development of liquid extraction processes.
- ☐ Bltn. #572 - Economical design of liquid extraction processes - How increasing the number of stages reduces processing costs.

We invite you to see our equipment at the Chemical Exposition, Booth No. 69.

OTTO H. YORK CO., INC.

6 Central Avenue
WEST ORANGE, NEW JERSEY



YORK PROCESS EQUIPMENT CORP.

4 Central Avenue
WEST ORANGE, NEW JERSEY

New Process Equipment

1957 INVENTORY

Literature Available

Equipment, Corrosion-Proof—
Grinders, Dispensers, Mixers

Equipment, Corrosion-Proof......Company offers general information on Knight products, including towers, neutralizing basins, process vessels, piping, valves, fume scrubbers, packings, Bul. 11.
82 *Maurice A. Knight Co.

Floats......Harris Floats for any liquid, for high pressures, for high temperatures. Catalog presents data on various sizes, types of floats, and suitable metals for different corrosive liquids, temperatures.
422A Arthur Harris & Co.

Flocculation Equipment......Company offers complete line of equipment for economical handling of bulk or packaged chemicals—bucket elevators, tray elevators, screw conveyors and feeders, etc. Book 2442.
422B Link-Belt Co.

Flotation......More large plants are installing "Sub-A's" for entire flotation job, because they give maximum recovery at a low cost per ton. Simplified continuous operating. Bulletin F10-B81.
422C Denver Equipment Co.

Flotation Units......Design data on Gibbs flotation unit. Booklet tells how the Gibbs flotation unit works; details features; presents schematic flow diagram and specifications. Design Data pamphlet.
422D P. S. Gibbs, Inc.

Fluidizers......Company offers bulletin "Transport of Flour by Fluidization", giving uses & advantages of a Fluidizer, including schematic diagrams, design factors, etc. Request copy.
422E Superior Separator Co.

Fluidizers......Company offers information on their Superior "Fluidizer", including principles of fluidization, installation, general operating instructions, maintenance information, etc. Request a copy.
422F Superior Separator Co.

Fluo-Chlorinator......How the Model F-1400 Fluo-Chlorinator adds controllable quantities of fluoride and chlorine solution to potable water is explained in new Catalog 70F140. Request your copy now.
422G Fischer & Porter Co.

Foam Machine......Now polyurethane foams of any formulation can be produced at amazingly low investment with Klaunder Williams foam machines according to a bulletin that describes these units.
422H Gabriel Williams Co.

Fume Systems, Plastic......Have fume removal units are light weight for easy installation, or for heavy duty service where required. Have it tough, machineable, easily repaired. Bulletin F-7.
422I Haveg Industries.

Gamma Reference Sources......Available as standards for radioisotope users, these sources have known gamma-ray energies and intensities which are depicted on a 2-page leaflet now available.
422J Baird-Atomic, Inc.

Generators & Dryers......Pipe line purging problems solved by Kemp gas generator & dryer. They insure a constant supply of gas, & dry & free the gas sufficiently of oil vapors. Information.
422K C. M. Kemp Mfg. Co.

Generators, Gas......Compact unit produces protective atmospheres from natural gas or commercial propane for processing and packaging. Provides constant, oxygen-free atmosphere. Specifications.
422L W. F. & John Barnes Co.

Generators, Inert Gas......Assure a safe, dependable supply of chemically clean inert. Deliver inert at a special analysis... without fluctuations. For facts and technical data, request Bul. 1-10.
422M C. M. Kemp Mfg. Co.

Generators, Inert Gas......At a moment's notice of fire or explosion dangers, smothering gas flows instantly from R-C inert gas generators. Details on constant protection in Bulletin IGG-155.
422N Roots-Connorsville.

Generators, Inert Gas......Sub-X inert gas generator uses submerged exhaust of combustion products, allows river water or other low-cost water supply as coolant. Compact, economical. Bul. 114.
422O Thermal Research & Engrg.

Generators, Inert Gas......Sub-X inert gas generator utilizes submerged exhaust of combustion products and permits the use of river water as coolant. Gas or distillate oil burner. Bul. 114.
440 *Thermal Research & Eng.

Graders, Precision......Carter Precision Graders make separations to a degree of accuracy hitherto unobtainable because of the unique design of the perforated cylinders used. Folder available.
422P Hart-Carter Co.

Grinders......Company offers information on industrial grinding equipment which provide economical grinding and pulverizing of a variety of materials to any commercial standard. Form 5541.
422Q Jacobson Machine Works.

Grinders......By using Motor-Driven Dexter Valve Reseating Grinder, you gain savings as high as 400% on labor, increased production, fuel savings and power gains. Information.
422R Leavitt Machine Co.

Grinders, Dispensers, Mixers......Latest types of mixing, grinding and dispersing equipment for all types of applications is illustrated and described in brochure #3C now available on request.
422S Charles Ross & Son Co.

Now a Superior COATING SYSTEM

for Complete Corrosion Control

COATINGS	
CORROSION REPORT	BISONITE "957"
Material	Resistance
Acid	Excellent
Alkali	Good
Solvent	Poor

To prevent Corrosion by and Contamination of
Food Products Heavy Chemicals Beverages
Oils and Greases Hot Water
Salts Solvents

A thermally cured coating that resists acids, solvents and alkalis

- Permanent adhesion.
- Withstands 72% caustic at 130°C. for prolonged periods.
- Strong • Tough • Flexible.
- Glazed glasslike surface.
- Greater thickness in fewer coats. Reduces cost.
- A NEW Advance in the field of applied coatings.
- Applied by qualified applicators across the nation.



Solves many problems of chemical corrosion. For lining tanks, tank cars, pipes, food containers, storage bins, fans, ducts, hoods, etc. at moderate cost. Made by a company specializing in corrosion resistant coatings. Not a side line. BISONITE products in many cases have corrected conditions when other coatings have failed. Write for descriptive literature. Our nearest approved applicator will be glad to give your coating problems immediate attention.

BISONITE COMPANY, Inc.

P.O. Box 54
Buffalo 17, N.Y.

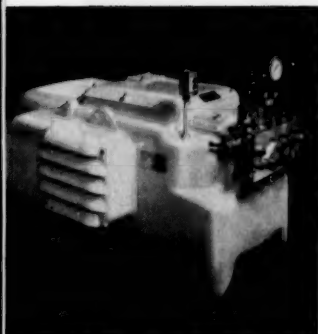


"Flexflo" Pumps. Complete line of centrifugals, in polished 316 stainless and unpolished finish. Capacities from 2,000 through 210,000 lb. hr.; 1/4 h.p. to 30 h.p. WRITE FOR BULLETIN G-524.

"Superplate" Heat Exchangers for continuous, closed circuit heating, cooling and regenerating. Electropolished knob-type plates of either 304 or 316 stainless. WRITE FOR BULLETIN G-515. Wide range of capacities available.



with this CHERRY-BURRELL equipment ...corrosion, flow control and heat transfer pose no problems



"Stellar Series" Superhomo Homogenizers. Single and two-stage Stellite homogenizing valves with replaceable valve caps of 18-8 stainless. Nine models from 50 to 5,000 g.p.h. WRITE FOR BULLETIN G-517.

Who knows your processing problems better than you? Nobody, of course.

Who knows Cherry-Burrell equipment better than we do? Again, nobody.

So why not, as so many do, combine this knowledge to solve your particular problem? Let us help analyze your needs . . . then recommend suitable corrosion-resistant processing equipment . . . even help install it for you.

Cherry-Burrell Engineers are at your service—wherever, whenever you need them. All are field-wise in setting up continuous processing systems to handle a wide variety of liquids and semi-liquids, at high and low temperatures.

Give your Cherry-Burrell Representative a ring soon . . . see what we mean by Sales and Service in 58 Cities—U. S. and Canada.



CHERRY-BURRELL
CORPORATION

427 West Randolph Street, Chicago 6, Illinois

Dairy • Food • Farm • Beverage • Brewing • Chemical • Equipment and Supplies

SALES AND SERVICE IN 58 CITIES—U. S. AND CANADA

"Round Processors."

Heavy-duty vats for zone control heating, cooling. Scraper blade and propeller agitators. Four models including vacuum and pressure processors. Sizes to 1000 gals. WRITE FOR BULLETIN G-512.

Tanks: Open-top type for storage, surge, side or bottom mixing. Six sizes from 60 to 500 gallons. WRITE FOR BULLETIN G-502. Closed-top type. Horizontal and vertical shapes, sizes to 5000 gallons. WRITE FOR BULLETIN G-506.

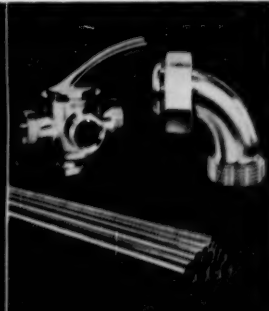
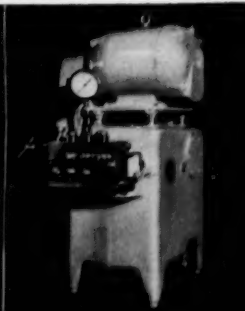
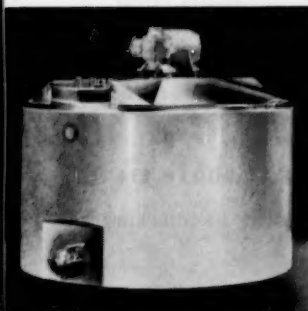
Uni-Seal Valves with rubber-covered interchangeable cast alloy plugs eliminate galling and scoring; unaffected by normal cleaning solutions. Sizes: 1", 1 1/2" and 2". WRITE FOR BULLETIN G-527.

"Stellar-Flo" High Pressure Pumps.

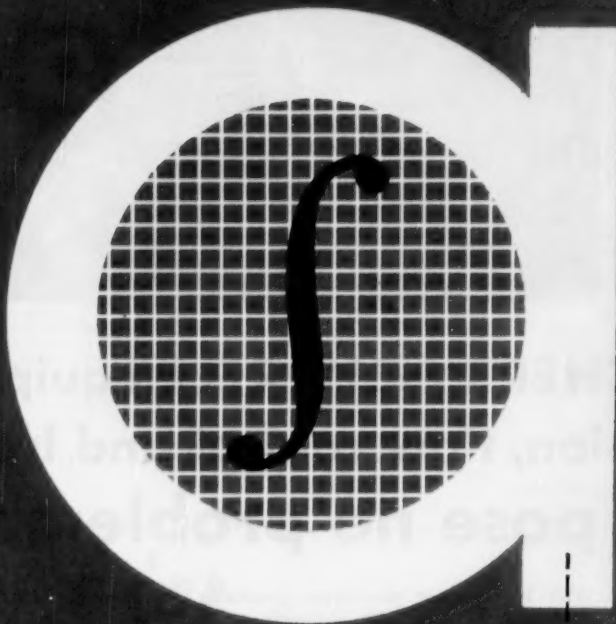
Four sizes for pressures up to 6,000 p.s.i., capacity range: 100 to 1,000 g.p.h. Five sizes for pressures up to 3,000 p.s.i., capacity range: 50 to 1,500 g.p.h. WRITE FOR BULLETIN G-537.

Tubing and Fittings.

Complete lines of stainless steel tubing and fittings. WRITE FOR BULLETIN G-443. Also, PVC Tubing. Unplasticized polyvinyl chloride for corrosive services under moderate temperatures and pressures. Nominal sizes of 1/2" to 4".



a symbol of excellence



Presenting

ARTISAN INDUSTRIES

...an established family of companies serving the chemical, pharmaceutical, petroleum, food, process and electronics industries in the manufacture of special and production equipment.

When you contact any member of the Artisan family on a problem, it's like hiring a team of specialists to go to work for you... without swelling your payroll. Wherever necessary, the know-how and facilities of the individual companies are pooled to bring to your problem a combination of skills, facilities, and experience unmatched in the field of process equipment.

This kind of integration can help you develop an idea — or a complete process — from its beginning to production of finished equipment.

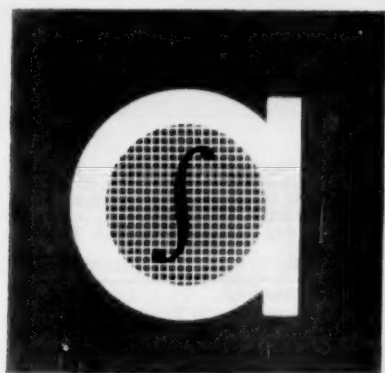
It is a complete service, worth investigation. Write today.

ARTISAN INDUSTRIES Waltham 54, Massachusetts



FREE—Fact-packed folder gives full information on the many services of each company. Invaluable reference material for anyone who will ever need special or production equipment. Write for your copy today.

SEE YOU AT BOOTH 874



Five companies with an integrated service for the manufacture of process equipment

A ARTISAN
ARTISAN METAL PRODUCTS INC.

Specialists in process equipment and pilot plants—

Evaporation • Distillation • Waste recovery • Heat transfer
Solvent extraction and recovery • Organic synthesis • Nuclear
process equipment.

Test equipment • Special machines • Packaging equipment
Continuous transfer and treating equipment • Nuclear
mechanical devices.

J-V JET-VAC
JET-VAC THE JET-VAC CORPORATION

Jet ejectors for the processing and power industries • Steam
jet ejectors for vacuum service • Ejectors to operate on special
process fluids or applications • Barometric condensers —
surface condensers.

K KONTRO
KONTRO THE KONTRO COMPANY INC.

AJUST-O-FILM Centrifugal Processing Equipment
THERMALIZERS.

M METALFAB
METALFAB METAL FABRICATORS CORPORATION

Fabrication for the electronics industry • Specialized components
for machine tool builders • Fractionating trays for
the chemical and petroleum industries • Missile and rocket
components • Aircraft sheet metal work • A-N Certified spot,
seam, heliarc and electric welding.

h-s hi-speed
HI-SPEED HI-SPEED EQUIPMENT, INC.

Film Spray Developing Machines — black and white • Film
Developing Machines — color • Silver Recovery Systems
Film Laboratory Equipment.

ARTISAN INDUSTRIES
71 POND STREET, WALTHAM 54, MASS.

New Process Equipment

Literature Available

Grinding Machine—

Mills, Attrition

Grinding Equipment.....“Jet-o-mizer”
is the mill that grinds to the narrowest
classification over the broadest
range of particle sizes. Produces
high product uniformity. Also
“Jet-o-clones”. Bul.
419 *Fluid Energy Processing.

Grinding Machine.....Sturtevant Micronizer grinding machines give
greater fineness than tube or
roller mills. Feature: no moving
parts; instant accessibility; easy
cleaning. Micronizer Bulletin.
425A Sturtevant Mill Co.

Gyradisc.....The Nordberg Gyradisc
uses the Gruendler method of reduction.
It is a revolutionary machine
for the production of large
tonnages of extremely fine products.
Full details in Bulletin 228.
425B Nordberg Mfg. Co.

High Pressure Apparatus.....Hofer's
Catalog on manufacturing program;
high pressure apparatus—
general instructions, explanations,
autoclaves; apparatus for semi-
technical plants.
425C Chemtech Prods. Corp.

Hydraulic Power Units.....A 52-page
catalog just published contains
complete technical data and specifications
on hydraulic power units
including pumps, cylinders, pressure
switches and accessories.
425D Oil-Dyne, Inc.

Impactors.....Offer lowest cost-per-ton
in producing top quality materials
from 2" down to 35 mesh with a
minimum of fines—or much
smaller where more friable products
are handled. Literature.
425E Williams Patent Crusher.

Impervious Graphite Equipment.....
Report helps estimate cost and select
impervious graphite processing
equipment. Standard models
illustrated. Includes details of impervious
graphite material.
425F Falls Industries.

Kettles.....Catalog shows the redesigned
line of Hamilton kettles. Includes
a wide range of steam jacketed
kettles, mix cookers, pressure
cookers, tilting kettles, vacuum kettles,
etc.
425G Hamilton Copper & Brass.

Kettles, Resin.....Bulletin LB-1 describes
in detail the Brighton line of
laboratory and pilot model synthetic
resin kettles. Units are complete
with coolers, heaters, condensers
and controls.
425H Brighton Corp.

Kiln Chain Systems.....For wet process
kilns in cement, paper and
chemical industries, chain system
is more resistant to wear, corrosion
and heat. Bulletin shows how to use
components of system.
425I Allis-Chalmers Mfg. Co.

Kilns, Rotary.....Improvements: all
welded; one-plate-to-a-circle construction;
patented heat recuperation;
effective air seals; centralized control;
air-cooled feed and discharge
ends. Details.
425J Allis-Chalmers Mfg. Co.

Kilns, Rotary.....Efficient thermo-processing
of products. Used in the
production of lime, bauxite, cement,
sodium silicate, alumina, etc. Data
on design features in Bulletin 1115.
Send for your copy.
425K Traylor Engrg. Mfg. Co.

Kilns, Rotary.....Made for the individual
installation. Traylor rotary
kilns have been built to 12'0" in
diameter and to 450'0" in length.
Company makes complete details
available in Bulletin 11-121.
425L Traylor Engrg. Mfg. Co.

Knife Cutters.....Illustrated data sheet
gives details on company's rotary
knife cutters for the processing industries.
Includes description of special
features, specifications.
Bulletin 141.
416-71 *Sprout-Waldron Co.

Liquid Handling Equipment.....Offers
complete unit designed for efficiency—
pump, motor and control,
with pump and motor mounted on a
single base plate for quick installation.
Bul. 25C6177.
425M Allis-Chalmers Mfg. Co.

Low Temperature Equipment.....
Items included in catalog include
liquid oxygen and nitrogen in-plant
transportation and storage units as
well as highway units and vaporizers.
Illustrations, charts.
425N Hofman Laboratories.

Mills.....Raymond IMP Mill with
flash drying accessories and package
furnace solves production problems
in the chemical and processing
fields. For details, request Catalog
No. 77.
425O Combustion Engineering.

Mills.....14" x 30" and 10" x 22" sizes
are for large production, the 5" x
12" provides economical production
of small batches, and the 4" x 8"
mill is specifically designed for lab
use. See Bulletin 456-A.
425P J. H. Day Co.

Mills.....Company offers literature
covering: conical mills, disc-roll
mills, tube mills, tricone mills,
cylindrical mills, batch mills and
rod mills. For information, Bulletin
AH-474-11.
425Q Hardinge Co.

Mills.....Mills for every application
are listed in bulletin. Includes tricone,
rod, cylindrical, tube, batch,
conical and disk mills. Also covers
grinding mill accessories and list
applications.
425R Hardinge Co.

Mills & Air Separators.....Company
offers bulletins on roller mills, cage
mills, imp mills, mechanical air
separators and vertical mills, along
with flash drying accessories. Free
on request.
429 *Combustion Eng. Co.

Mills, Attrition.....Double Runner attrition
mills have extreme flexibility
and versatility—can grind, cut,
shear, shred, pulverize, granulate,
roll, crack, blend, etc. Illustrated
Bulletin 133.
416-7b *Sprout-Waldron Co.

Mills, Attrition, Single Run.....Versatile
size, reduction unit runs, cuts,
tears, crushes, grinds, granulates,
pulverizes, twists, curls, hulls, and
blends. Company offers Bulletin No.
143.
425S Sprout-Waldron.

* From advertisement, this issue

ULTRA-PURE PROCESS WATER

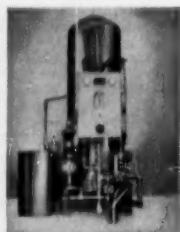
*completely
automatically*

Looking for a Demineralizer effluent with a purity in excess of 15-meg ohms? And fully automatic operation on a "Packaged" unit basis? Then consult Penfield — the pioneer designer and manufacturer of "Packaged" Demineralizers for industry's most critical needs.

Obtainable for fully automatic operation, including the entire regeneration cycle, or for manual control, Penfield Demineralizers are available in mono-column, dual-column and multi-column types — with flow rates from a few gallons per hour to 10,000 G.P.H. and up.

Each Penfield Demineralizer is shipped completely assembled — ready for instant operation upon simple connection with a plant's service lines. Write today for specification sheets on a Penfield "Packaged" unit that will fulfill your requirements for ultra-pure process and make-up water.

An ultra-pure effluent in excess of 15-meg ohms is produced by this fully automatic Model MA Penfield Mono-Column Demineralizer. When purity falls below pre-set standards, the need for regeneration is automatically signalled. The setting of a single switch then accomplishes a complete regeneration cycle, including rinsing and recutting in effluent when desired resistivity (purity) is reached. Model MA units are available with flow rates from 200 to 5,000 G.P.H.



are regenerated by the Penfield SR-1 Regenerator (main picture) — an in-plant component of this special Penfield Demineralizing System.

Penfield engineers often can contribute importantly to improved process or end-product results. Phone, wire or write for this consultation service.

PENFIELD
MANUFACTURING COMPANY, INC.
19 High School Ave., Meriden, Conn.

New Process Equipment

Literature Available

Mills, Ball
Mills, Roller

Mills, Attrition, Single Run.....Versatile size reduction unit rubs, cuts, tears, crushes, grinds, granulates, pulverizes, twists, curls, hulls, and blends. Company makes details available in Bulletin No. 143.
416-7x *Sprout-Waldron.

Mills, Ball.....A steel-head ball mill will suit your particular need. Five types of discharge trunnions. All-steel construction. Low initial cost due to quantity production. Details in Bulletin B2-B13.
426A Denver Equipment Co.

Mills, Ball.....Traylor grinding mills are offered in a wide variety of types including: ball, rod, compartment and tube mills for wet or dry, coarse or fine grinding. Details in Bulletin 11-121.
426B Traylor Engrg. & Mfg. Co.

Mills, Ball & Pebble.....Valuable references give details on the Abbe Engineering series of mills for every range of work from small batch jobs to full scale plant production. Catalog Nos. 73 & 77.
426C Abbe Engrg. Co.

Mills, Ball & Pebble.....Of welded steel construction, and furnished in all standard sizes from 18" x 24" to 96" x 144" inclusive, with 9 different drive arrangements. For details, see Bulletins 100-A, 100-B.
426D International Engineering.

Mills, Blade.....Designed for large tonnages of hard-to-wash materials, blade mills disintegrate & wash into suspension tenacious clays and other unwanted substances. Request details.
426E Allis-Chalmers Mfg. Co.

Mills, Bowl.....Raymond Bowl Mill, complete, full coordinated coal pulverizing system with flexible control and automatic operation will modernize your rotary kiln firing. Catalog No. 75.
426F Raymond Div.

Mills, Compacting.....Used to produce paper-thin flakes or to increase the apparent density of your product. Mills handle a variety of grinding, crushing, rolling or compacting jobs. Details available.
426G Allis-Chalmers Mfg. Co.

Mills, Disc-Roll.....Hardinge Disc-Roll Mill is a roller-type mill with two adjustable, pneumatically loaded rolls for grinding material on a horizontal rotating disc or table. See Bulletin 52-11.
426H Hardinge Co.

Mills, Grinding.....Allis-Chalmers can meet your specifications whether your process calls for individual mills or a grouped stage grinding series. Request details on 7 different types of grinding mills.
426I Allis-Chalmers Mfg. Co.

Mills, Grinding.....Jet-o-mizers grind almost any product to between ¼ and 3 microns average particle size, with narrow classification range. Also Jet-o-clone dust collectors. Bul.
426J Fluid Energy Processing.

Mills, Grinding.....Catalog discusses application and selection of conical mills, tricone mills, cascade mills, rod mills, tube mills, disc roll mills for dry grinding problems. Bulletin 17-C.
426K Hardinge Co.

Mills, Grinding.....Literature describes a Fords industrial hammer-mill designed to handle a wide range of grinding, both fine and finish grinding, and product reduction in a variety of industries.
426L Myers-Sherman Co.

Mills, Grinding.....Nordberg grinding mills for efficient, low cost processing of cement, ores, industrial minerals and rock products. Offer these types: rod, ball, tube and pebble, compartment. Bulletin 232.
426M Nordberg Mfg. Co.

Mills, Grinding.....Publication covers features that give the Futura Grinding Mill its ability to grind materials with maximum efficiency, at lower cost. Brochure No. B-562.
426N Patterson Foundry & Mach.

Mills, Grinding.....Traylor grinding mills are available in sizes to meet practically every requirement and are offered in a wide variety of types, including ball, rod, etc. Bulletin 11-121.
426O Traylor Engineering & Mfg.

Mill, Hammer.....Catalog 907 illustrates and describes Ridgid hammer type shredders, grinders and hashers. Included are details of construction and operation, dimension drawings and specifications.
426P Jeffrey Mfg. Co.

Mills, Hammer.....Long-life, quick-change screens are feature of hammer mill. Life of screens has been increased ten-fold and capacities are higher. Assembly dwg., specifications, dimensions.
426Q Strong-Scott Mfg. Co.

Mills, Hammer.....Reduce to 20 mesh. Swing-Sledge mills crush moderately hard material up to 70 tph. Hinged-Hammer pulverizers crush softer material up to 30 tph. For information, Bul. 084.
426R Sturtevant Mill Co.

Mills, Hammer.....Crushes, grinds, shreds to finished size in one operation; reduces production costs up to 50%; saves up to 75% on equipment cost. Company makes details available in complete cat.
426S Williams Patent Crusher.

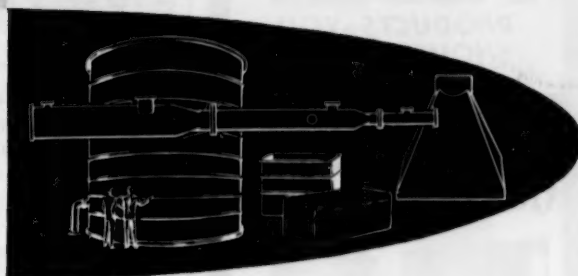
Mills, Hammer....."HD" heavy duty hammer mills can be equipped for motor or belt drive. Powerful, rugged, flexible, easily adjusted, compact. Full description with drawings in Bulletin 1-B.
416-7h *Sprout-Waldron Co.

Mills, Imp.....Raymond Imp mill is equipped to handle almost any combination of pulverizing, blending, classifying, conveying and/or drying operation. For complete details, request Catalog 77.
426T Raymond Div.

Mills, Roller.....Company offers Raymond Roller Mill with double Whizzer Separator. Suited for large capacities. Flash drying accessories may be furnished with the mill. Details in Catalog 79.
426U Raymond Div.

* From advertisement, this issue

Rx FOR CORROSION: BEETLE BONATE®



**7 years use proves
Bonate® tanks and
process equipment
are completely
resistant to 30
corrosive chemicals**

Corrosion waste can be overcome! In addition to maintenance economy, the proven corrosion resistance of Bonate equipment can cut processing costs further by eliminating the need for costly coatings or special inhibitors.

Constant exposure, 7 years of it, to corrosive liquids and fumes proves Beetle Bonate can take it! Glance at this chart. It gives the year-by-year corrosion free record set by Bonate storage and processing tanks, covers, vents, ducts, hoods, pipes, fittings and pilot plant equipment now in use all over the world.

Possibilities Unlimited!

... Almost any type of equipment requiring corrosion, temperature and impact resistance, light weight and structural self supporting strength, can be fabricated economically and swiftly for you by Carl N. Beetle Plastics Corp.

Information and Engineering Help Available ... Without obligation, write, wire, or phone for descriptive technical application bulletins or for specific engineering help and data.



No Corrosion Reported

By These Chemicals	at these temperatures	with this type of contact	since these installation dates
Acetic Acid, Glacial	75°F	Liquid	1952
Acetylene Gas in H ₂ O 25 PSIG	194°F	Exhaust	1953
Acid & Neutral Syntons	212°F	Liquid	1954
Alkylene Solution PH-810	75°F	Liquid	1955
Aluminum Sulphate, HCL & H ₂ O	234°F	Exhaust	1953
Aluminum Sulphate H ₂ O	212°F	Exhaust	1952
Ammonia Gas, Steam	212°F	Exhaust	1953
Ammonium Sulphate	160°F	Liquid	1954
Anilindyes	212°F	Liquid	1954
Bicarbonate Ammonia	212°F	Liquid	1955
Bicarbonate of Soda	212°F	Liquid	1955
Bichromate of Soda	75°F	Liquid	1955
Bleach 40% — Water 60%	75°F	Liquid	1954
Copper Sulphate 23%	140°F	Liquid	1951
Disulphonic Acid and Sodium Benzene	212°F	Exhaust	1955
Enzyme Action PH-4.5	75°F	Liquid	1955
Ferric Chloride	75°F	Liquid	1955
Fluosilic Acid, CO ₂ , Steam	150°F	Exhaust	1956
Formalin 37%	75°F	Liquid	1953
Formic Acid	160°F	Liquid	1955
Gelatin	75°F	Liquid	1953
Hydrochloric Acid 100%	75°F	Liquid	1951
Hydrochloric 100% 15 PSIG	212°F	Liquid	1954
Hydrochloric 20% — Formic 3%	170°F	Liquid	1953
Hydrochloric 25% Alkali 5%	203°F	Liquid	1954
7-10% H ₂ SO ₄ and 12% SO ₂	150°F	Exhaust	1957
Condensate	150°F	Exhaust	1957
Methanol	75°F	Liquid	1956
Mucilage	75°F	Liquid	1954
Nitric Acid 76%	75°F	Liquid	1952
Perchloric Acid	75°F	Liquid	1952
Perchloric Acid 25%	75°F	Liquid	1954
Plating Room Atmospheres	Varied	Exhaust	1952
Raw Oils	150°F	Liquid	1955
12% SO ₂ with Condensate	150°F	Exhaust	1954
Selenious Acid	140°F	Liquid	1953
Sewerage	75°F	Liquid	1956
Silver Nitrate Solution	75°F	Liquid	1953
Sodium Chloride	160°F	Liquid	1954
Sodium Formate	160°F	Liquid	1955
Sodium Thiosulphate	120°F	Liquid	1955
Sterax (Poly-oxethylene Thio-ether)	75°F	Liquid	1956
Sulphanated Oils	160°F	Liquid	1955
Sulphuric Acid, 10% Spent	75°F	Liquid	1954
Sulphuric Acid 18%	140°F	Liquid	1956
Sulphuric Acid 20%	150°F	Liquid	1952
Sulphuric Acid 30%	160°F	Liquid	1955
Titanium Potassium Oxalate	212°F	Liquid	1954
Vegetable Extracts I. E., Quebracho	212°F	Liquid	1954
Water Drinking	75°F	Liquid	1951
Hot	180°F	Liquid	1951
Salt	180°F	Liquid	1951

PULVA

PRODUCTS YOU
SHOULD KNOW
ABOUT

THE Com-Bin Feeder



A combination Surge Bin and Feeder for continuous feeding of dry, damp, wet, sticky, difficult to feed materials which give trouble when placed in a conventional bin or hopper.

Produces a positive, uniform, metered feed from pounds per minute to 100 tons per hours or more.

WRITE FOR DESCRIPTIVE
CATALOG No. 5607

THE PULVA-SIZER

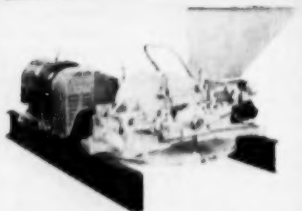
A SIZE AND TYPE TO MEET
YOUR REQUIREMENTS

FINE GRINDING

BLENDING

DISPERSING

CLOSE PARTICLE CONTROL



The PULVA-SIZER is the ultimate in high-speed hammer mill design. It is a complete grinding unit for dustless, trouble-free, continuous, controlled grinding.

WRITE FOR DESCRIPTIVE
CATALOG No. 5510

VISIT "OUR BOOTH No. 220"
AT THE
CHEMICAL SHOW — DECEMBER 2-6

PULVA

Corporation

613 High Street Perth Amboy, N. J.
VA 6-3450

New Process Equipment

Literature Available

Mills, Ring Roll
Presses, Wax Molding

Mills, Ring Roll.....Reduce hard or soft 1½ in. & smaller material to from 6 to 200 mesh. Grind only—no screens. Capacities of 3 models range up to 18 tph, depending on model & material. Bulletin 079.
428A Sturtevant Mill Co.

Mills, Roller.....Positive and continuous precision size control at exceptionally high production rates are but two of the features of Williams Roller Mills. Request descriptive Catalog.
428B Williams Patent Crusher.

Mills, Roller.....Company's versatile roller mills insure accurate control of particle size and operate continuously with low maintenance. Conveniently accessible, rugged. Bulletin 153.
816-7q *Sprout-Waldron Co.

Mills, Tube.....For wet grinding titanium pigments, manganese dioxide, diatomaceous earth, limestone; for dry grinding silica flour, gypsum, carbon black, pigments, cement materials. Bul. 18-B-11.
428C Hardinge Co.

Mills, Vertical.....Raymond vertical mill provides superfine pulverizing with a simplified grinding unit, easy control, quick accessibility with hinged doors. Two sizes described in Bul. 78.
428D Combustion Engineering.

Mist Collectors.....Electro-Staynew mist collectors remove over 90% of oil mist and smoke, possess unit construction, ease of installation, demountable components, safety features. Bulletin 420.
428E Dollinger Corp.

Mufflers, Air Exhaust.....Introduces "Automuffler" model engineered for better noise cancellation and easier installation. Features 4-port deflector. Company gives literature on request.
428F Allied Witan Co.

Nuclear Purifier.....How you can purify contaminated streams of dangerous radioactivity is told in a leaflet that describes the model XP15 nuclear purifier, a disposable package unit.
428G Permutit Co.

Oil Purifiers, Centrifugal.....Various model DeLaval centrifugal oil purifiers and their particular applications are discussed in Bulletin OP-109. Capacities of each machine are included.
428H DeLaval Separator Co.

Pellet Mill.....Forms powered and dusty material into compressed pellets for better handling—eliminates dust and avoids material loss. Details of construction and applications in bulletin 182.
416-7v *Sprout-Waldron & Co.

Pelletizers, Plastic.....How Taylor-Stiles 700 Series multiple-knife cutters reduce extruded plastic rods to pellets is shown in 4-page folder. Unit cuts 10 tons of uniform pellets per hr.
428I Taylor-Stiles & Co.

Pilot, Temperature or Pressure.....Scope of applications is well beyond the range of ordinary pilots for flexibility and accuracy, and compares favorably with much more expensive controllers. Catalog.
428J U. S. Gauge Div.

Pipe Hangers, Supports, & Vibration Eliminators.....Complete line of standard and custom-engineered pipe hangers, supports, and vibration eliminators. Each a complete packaged unit. Cat. No. 54.
428K Blaw-Knox Co.

Plastic Equipment, Corrosion-Resistant.....32 p. catalog covers corrosion-resistant plastic equipment. Gives coverage to Haves' range of synthetic resin formulations. Catalog C-14.
428L Haves Industries.

Pneumatic Specialties.....Folder F-15B illustrates line of pneumatic specialties and lists specifications together with operating characteristics and advantages. Filters, regulators, lubricators, accessories.
428M Watts Regulator Co.

Polymerizers, Glassed Steel.....Standard Pfaudler polymerizers offer these benefits: reduced cost, assured purity, easy to clean, easy to operate. Details made available to you on request in Bulletin 932.
428N Pfaudler Co.

Polymerizers, Glassed Steel.....Bulletin outlines the latest advances and accessories in line of glassed steel polymerizers. Standard design rates up to 350 P. from vacuum to 150 or 200 psi.
428O Pfaudler Co.

Prebreakers.....Bulletin P-508 for the food & chemical process industries, discusses applications of different models of Prebreakers & Mastigators to size reduction and/or mix-of bulky solids.
428P Rietz Mfg. Co.

Preheaters, Air.....The Ljungstrom boosts products quality & its heat-recovery efficiency makes possible advanced furnace designs that assure close control of processing. Request product data.
428Q Air Preheater Corp.

Presses, Dewatering.....A battery of Davenport 1B continuous presses dewatering waste paper pulp in the manufacturing of paper shipping containers. Company makes full details available in Catalog A.
428R Davenport Mach. & Fndry.

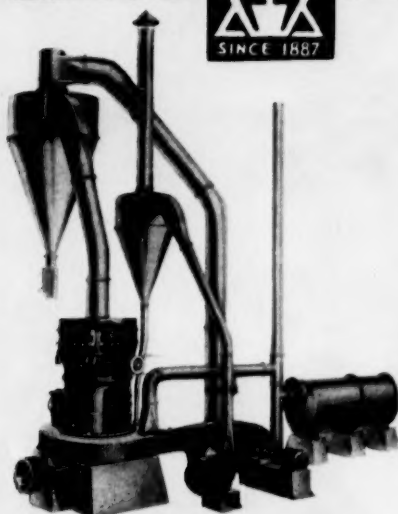
Presses, Industrial Compacting.....Catalog describes Stokes industrial compacting presses, used for making a variety of products, from tiny ferrite rings to large ceramic parts. Catalog 816.
428S F. J. Stokes Corp.

Presses, Wax Molding.....Press cools and molds paraffin or natural wax, or other substances, into multiple cakes of uniform size, weight and appearance, without shrinkage. Request Bulletin 127.
428T T. Shriver & Co.

* From advertisement, this issue

Literature continued on p. 432

Serving THE CHEMICAL AND PROCESSING INDUSTRIES



RAYMOND ROLLER MILL with Flash Drying System for drying and grinding in one automatic operation.

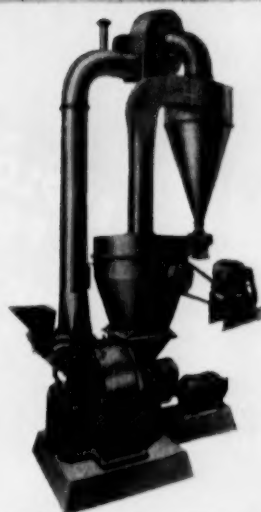
Raymond

... builds a full line of Mills and Air Separators for the production of powdered materials by clean, dustless, automatic operation.

These units range in capacity from a few hundred pounds up to 30 tons or more per hour of finished product.

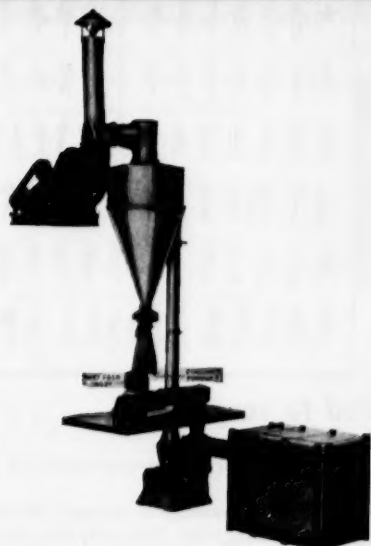
The pulverized materials are classified by Whizzer Separation, and are easily controlled for fineness from 50 mesh up to 99.9% or better passing 325 mesh.

When equipped with Flash Drying Accessories, Raymond Mills remove moisture while grinding, thus delivering a fine, dry product.



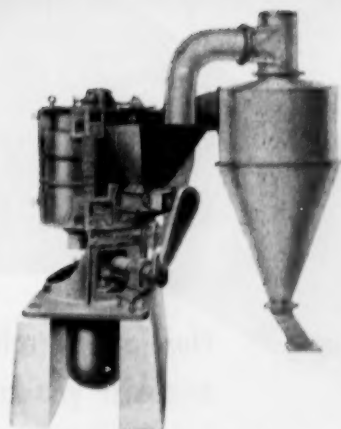
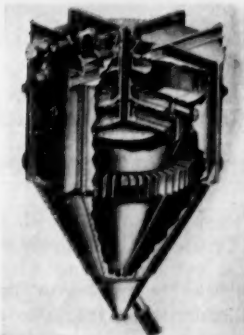
RAYMOND IMP MILL with Whizzer Separation insuring ease of fineness control and a uniform product.

PULVERIZING • AIR SEPARATING • FLASH DRYING EQUIPMENT



RAYMOND CAGE MILL with Flash Drying equipment for disintegrating and drying fine materials.

RAYMOND MECHANICAL AIR SEPARATOR for handling feed from the mill and classifying it to a uniform product. Equipped with a double set of revolving whizzers.



RAYMOND VERTICAL MILL for extreme high fineness grinding in the low micron, sub-sieve particle sizes.

Bulletins will be sent on request describing these Raymond machines.

COMBUSTION ENGINEERING, INC.

1311 North Branch St.
Chicago 22, Illinois

Raymond Division

Combustion Engineering-Superheater Ltd., Montreal, Canada

Sales Offices in Principal Cities

**OF
EXPLOSION-
PROOF
AND
DUST-TIGHT*
ELECTRICAL
EQUIPMENT**

There are more than 17,000 items in the Crouse-Hinds line of Condulet® and floodlighting equipment. Each is designed with some specific advantage or quality that makes it best suited for a particular application.

Their job is to confer with the users of Crouse-Hinds equipment and to point out the reasons why certain Condulet equipment or floodlights are better suited for a particular job than others. With a broad grounding in the details of the National Electrical Code and a trained alertness for spotting explosion hazards in unsuspected places, they make a con-

Their service is prompt and without obligation. Naturally they usually work on jobs of sufficient size to merit top-level attention, but even a small job with a large problem gets the same careful appraisal. If you'd like to talk or correspond with such a specialist, just write, wire or phone.

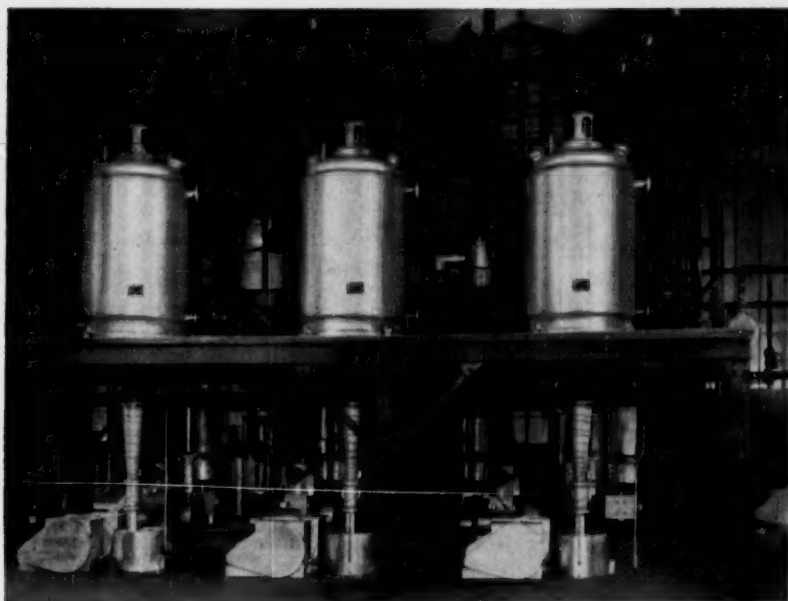
CROUSE-HINDS COMPANY

Main Office and Factory: Syracuse, N. Y.

Crouse-Hinds Company of Canada, Ltd.: Toronto, Ont.

Chicago Boston Dallas Chicago Cincinnati Cleveland Corpus Christi Dallas Denver Detroit Houston Indianapolis Kansas City Los Angeles Milwaukee New Orleans New York Philadelphia Pittsburgh
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Inquiry Code Number for This Advertisement-430



Paraffin at a Fraction of a cent Per Pound!

Three Asco Molecular Still at
Trans Penn Oil Co. Can Produce
More than One Tank Car
Per Day



ASCO ROTA-FILM

The Only Molecular Still
Sold on a
Royalty-Free Basis

are you the 1 in 20* who knows how MOLECULAR DISTILLATION can increase profits?

If you are that one, you know that Molecular Distillation can process organic compounds with molecular weights from 200 to 1250 and silicones and halocarbons to 4000.

This means that a broad range of processes can be carried out with better results and at far less initial cost and far less operating cost than by methods commonly used. Here are a few such processes:

- Vitamin Recovery from Natural Triglycerides
- Purification of Monoglycerides
- Isolation of Natural Oil Components
- Distillation, Decolorizing, Recovery
- Purification of Pharmaceuticals
- Removal of odors, colors and non-saponifiables from crude tall oil,

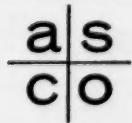
fatty acids and materials of higher molecular weights in general.

Results and savings are often startling. For example, a leading pharmaceutical manufacturer produces a tranquilizer from compazine base (a previous impossibility) using an Asco Molecular Still—weekly savings more than equal still cost, and the product is purer! . . . A French chemical producer distills electrical grade dioctyl phthalate of high quality on a commercial scale. . . . A U. S. company de-glycerinates glyceride mixtures with remarkable economy, just one of the separations and distillations of glycerides possible with Asco Molecular Still.

Many more similar cases can be cited in which Asco Molecular Distillation has increased profits, improved results.

*Based on Recent Survey of Chemical Engineers

WRITE: DEPT. CE11



ARTHUR F. SMITH COMPANY

311 ALEXANDER ST. • ROCHESTER 4, N. Y.

✓ Check These Asco Features:

- ☐ Capacity Per Unit Practically Unlimited
- ☐ Present Personnel Can Operate
- ☐ Accelerated, Turbulent Film
- ☐ Shorter Exposure Time
- ☐ Minimum Pressure Drop
- ☐ Largest Possible Open Path

Test at Low Cost!

A laboratory size Asco Rota-Film Molecular Still is now available. This permits inexpensive tests accurately transferable to Asco industrial models. Price is \$391.



New Brochure

Fully Describes Models
and Applications

Molecular Distillation for industrial application is growing rapidly. If you are not fully informed on its possibilities, send for free brochure, " . . . Molecular Distillation with the Rota-Film Still."

New Process Equipment

1957 INVENTORY

Literature Available

Pressure Vessels—
Process Equipment

Pressure Vessels..... Outline of company's ability to supply evaporators, extractors, equipment design and drawings, piping, pilot plants, towers and heat exchangers is contained in 6 p. folder.
432A Vulcan-Cincinnati, Inc.

Process Equipment..... 32 p. bulletin covers all Allis-Chalmers equipment for the process industries. This bulletin, as well as literature covering specific equipment lines, is available. Bulletin 2506177.
432B Allis-Chalmers Mfg. Co.

Process Equipment..... Guide to corrosion-free process equipment. 80 pages of information on the behavior of aluminum. "Process Industries Applications of Alcoa Aluminum."
432C Aluminum Co. of America.

Process Equipment..... 4 p. bulletin describes 4 classes of process equipment; equipment for food processing, for mil's for pulverizing, etc., & for oil milling & asbestos industries. Bulletin 56.
432D Bauer Bros. Co.

* From advertisement, this issue

Write for INFORMATIVE LITERATURE on GRINDING & MIXING EQUIPMENT

CATALOG "Y", Section A... 24 pages...
Jar Mills and Jar Rolling Mills.

CATALOG "Y", Section B... 40 pages...
Ball and Pebble Mills for Batch or Continuous Operation.

CATALOG V-1... 20 pages...
Dry & Paste Mixers

JAR ROLLING MILL FOLDER... 8 pages...

ROTA-CONE BLENDER AND VACUUM
DRYER FOLDER... 12 pages...

HANDBOOK OF BALL & PEBBLE MILL
OPERATION... 32 pages...

Drop us a line today asking for these FREE
and INFORMATIVE Folders and Catalogs.

PAUL O. ABBE

375 Center Ave. Little Falls, N. J.

Process Equipment..... Company has a team of specialists that consider unusual fabricating requirements. No problem with rigid customer specifications. Details in Facilities Booklet.
432E Chicago Steel Tank Co.

Process Equipment..... "The ABC's of Speed and Cost Reduction—by Cleveland" is a 4 p. bulletin showing a cross-section of equipment which can help solve problems of speed reduction. Bulletin 521.
432F Cleveland Worm & Gear Co.

Process Equipment..... Manufacturing techniques that achieve high efficiency allow you to purchase Day equipment economically. Mixers, sifters, blenders, roller mills, pilot plant equipment. Catalog.
432G J. H. Day Co.

Process Equipment..... General 8-page Bulletin G3-B0 shows latest improved models of process equipment for the chemical, processing, mining and milling industries; rubber covering service.
432H Denver Equipment Co.

Process Equipment..... Large scale and special purpose process equipment for chemical, textile, plastic, rubber and allied industries described. Design and construction details. Bulletin 236.
432I Dravo Corp.

Process Equipment..... Company helps you determine most efficient equipment for conveying, cooling, and preheating dry materials; feeding and aeration in bulk materials, etc. Bulletin G-3.
432J Fuller Co.

Process Equipment..... Catalog gives manufacturer's line of materials handling, process equipment and services. Description of facilities to solve customer problems. Send for your copy.
432K Gen. American Transportation.

Process Equipment..... Pipe and fittings, towers, tanks, pumps, valves, nozzles, filters, etc. made of Chemplas 15, a mixture of furan resin and inert ceramic. Resists corrosives and heat. 4 p.
432L General Ceramics Corp.

Process Equipment..... Hardinge builds self-contained portable dry grinding unit for small-scale continuous dry grinding or pulverizing and similar wet grinding unit. Request Bulletin AH-448.
432M Hardinge Co.

Process Equipment..... Ruggles-Coles pilot plant rotary dryer is designed especially for laboratory use or for small capacity unit operations requiring a drying step. Bulletin AH-473.
432N Hardinge Co.

Process Equipment..... Company offers technical bulletins on agitators, portable mixers, mixing and extruding machinery, dry blenders, ribbon mixers, grinding and mulling pans, mill's, etc. Free.
432O International Engineering.

Process Equipment..... Bulletin on gyratory crushers, swing jaw crushers, tube mills, ball & rod mills, vibrating screens, rotary kilns, coolers, drivers, belts, conveyors, steam generators, etc.
432P Kennedy-Van Saun.

Process Equipment..... Corrosion proof chemical equipment—from piping to complete plant—engineered and constructed to your requirements. Knight products and materials in Bulletin 11-U.
432Q Maurice A. Knight.

Process Equipment..... Dry blending and heat transfer equipment for the Chemical and Process Industries described in catalog. Information on Liquid-Feed Twin-Shell blender. Catalog 14.
432R Patterson-Kelley Co.

Process Equipment..... Pfaudler Buyer's Guide covering the firm's corrosion-resistant process equipment. Information on custombuilt equipment, columns, condensers, tanks, etc. Bulletin #936.
432S Pfaudler Co.

Process Equipment..... Bulletin covers continuous granular fertilizer processing equipment such as: ammoniators, granulators, dryer furnaces, dryers, coolers, air handling systems.
432T Edw. Renneburg & Sons.

Process Equipment..... "A New Approach" to recording, indicating and controlling instruments required in industrial processing is described in a 4 p. bulletin. Request your copy of Bulletin No. F-403.
432U Robertshaw-Fulton Controls.

Process Equipment..... Sweco designs and manufactures reliable process equipment, including heat exchangers, feed-water heaters, pressure vessels, distillation columns, etc. Ask for Brochure M-1-32.
432V Southwestern Engineering Co.

Process Equipment..... Broad range of process equipment described in "An Outline of Progress" includes units for every mixing, blending, size reduction and materials handling application.
432W Strong-Scott Mfg. Co.

Process Equipment..... Company offers bulletins on their machines for blending, crushing, micron-grinding, screening, grinding, air separating, granulating, pulverizing, mixing and conveying.
432X Sturtevant Mill Co.

Process Equipment..... 12 p. booklet "An Open Door" shows how Swenson can assist in solving your processing problems. Planning, surveillance of operation, post-installation checks.
432Y Swenson Evaporator Co.

Process Equipment..... 32 p. booklet, "Working for Profit" shows how company's evaporators and spray dryers, cranes and truckmobiles, and other equipment help simplify production, cut costs.
432Z Swenson Evaporator Co.

Process Equipment..... Davenport makes rotary water tube coolers, rotary steam tube dryers, rotary hot air dryers, continuous dewatering presses, rotary air coolers and other equipment. Catalog A.
111 Davenport Mach. & Foundry.

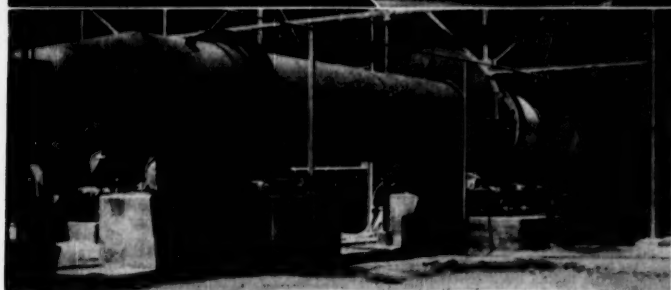
Process Equipment..... Traylor rotary kilns, coolers, dryers and slakers incorporate many design and engineering innovations. Full data on line of Traylor products is included in Bul. 1115.
433 Traylor Eng. & Mfg. Co.

TRAYLOR-MADE

Rotary Kilns
Coolers
Dryers
Slakers

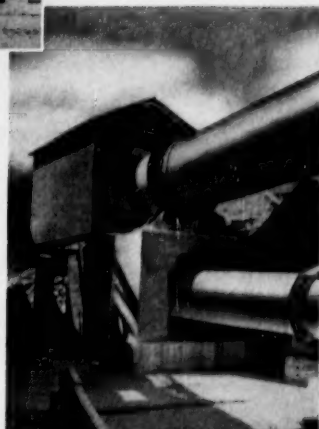


8'-6" diameter x 350'-0" Traylor Rotary Lime Sludge Recovery Kiln in paper mill.



7'-0" diameter x 60'-0" Traylor Rotary Slaker in chemical processing plant.

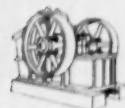
For over half a century Traylor-Made Machinery has helped some of the process industries to satisfy the demand for greater production. Constructed by master craftsman, Traylor equipment incorporates many design and engineering innovations that make Traylor rotary kilns, coolers, dryers and slakers the choice of engineers and operators. For information on these fine Traylor-Made products write for bulletin number 1115 today !!



6'-0" diameter x 120'-0" Traylor Rotary Kiln with a 4'-0" diameter x 36'-0" Traylor Rotary Cooler in a lime plant.



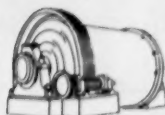
SECONDARY GYRATORY CRUSHERS



JAW CRUSHERS



PRIMARY GYRATORY CRUSHERS



BALL MILLS



ROTARY FEEDERS



ROTARY KILNS

TRAYLOR ENGINEERING & MFG. CO., 1940 Mill St., Allentown, Pa.

Sales Offices: New York — Chicago — San Francisco
Canadian Mfr.: Canadian Vickers, Ltd., Montreal, P.Q.

Traylor

DAY Blender (Cooler), 10,000 lbs. capacity, discharging into one of two DAY Ro Ball Sifters.



DAY installs blenders, sifters, acidifiers at CLINTON



World's largest mixer, built by DAY and used for blending dextrin, 60,000 lbs. capacity.

DAY wood tank acidifier, 10,000 lbs. capacity, scale mounted.

Clinton Corn Processing Company, a division of Standard Brands, Inc., Clinton, Iowa, has used DAY process equipment for years and has found it to be dependable and economical. Therefore, when equipping its new, modern plant, DAY blenders, sifters, coolers and acidifiers were again specified and installed.

If you make DAY process equipment your *first choice*, you, too, will produce a better product at real savings. Remember:—"Every day is a great day when you use DAY equipment". Why not write for a catalog now?

The J. H. DAY CO.
Division of The Cleveland Automatic Machine Co.

SERVING THE PROCESS
INDUSTRY SINCE 1887
4926 BEECH STREET
CINCINNATI 12, OHIO

SEE DAY AT THE CHEM SHOW BOOTH 121-122

Inquiry Code Number for This Advertisement-434

1957 INVENTORY

Literature Available

Process Equipment
Processing Equipment

Process Equipment....Company manufactures a wide variety of process equipment, refrigeration and ice making equipment, valves, fittings, flanges, steam generators, etc. Send for catalogs.
92-3 *Henry Vogt Machine Co.

Process Equipment.....Equipment designs are available at low cost. Complete facilities to build equipment from such corrosion-resistant materials as glassed steel, stainless steel, nickel. Bulletin 947.
1351 *Paudler Co.

Process Equipment.....Stainless steel equipment built to your specifications. Cooling & heating coils; coil type spray dehumidifiers; cooling towers & evaporative condensers. Brochure.
141 *Marlo Coll Co.

Process Equipment, Corrosion-Resistant.....General catalog 58 gives a brief description of the complete Duriron line of process equipment for use under corrosive conditions existing in chemical operations.
434A Duriron Co.

Process Equipment, Fabricated.....For efficient means to fast, economical production, for individualized equipment designed & constructed to fit your needs, request Koven's Bulletin 550.
434B L. O. Koven & Bro.

Process Equipment, Impervious Graphite....."Karbate" impervious graphite process equipment offers lower first cost, low maintenance, high corrosion resistance, high thermal conductivity. Literature.
434C National Carbon Co.

Process Units, Turba-Film.....Turba-Film process units can help you in normal or specialized applications, either as an individual unit or as part of engineered "package systems." Information.
434D Rodney Hunt Machine Co.

Processing Equipment.....Describes corrosion - resistant processing equipment, precision built to your requirements to give long years of performance with low maintenance. Technical Bulletins.
434E Lee Metal Products Co.

* From advertisement, this issue

➔ **Want more information on any of these items? Just write its code number on one of the postcards inside the back cover, then mail it to us. It's that easy now.**



"Buffalo" Resin-Bonded
Fiber Glass Fume Fan

"Buffalo" Type "FG" Fume Fans provide superior chemical resistance to a wide variety of corrosives, including acids, salts, gases, organic materials. Temperature applications range up to 225°F.

The fan housing is formed of resin-bonded fiber glass. All exposed areas of the carefully-balanced steel rotor are encased in thick fiber glass. The "FG" is available in standard capacities up to 34,000 cfm at pressures to 10" static.

For full details, including chemical resistance table, write for Bulletin FI-511.

"Buffalo" Cast Iron Exhausters, widely-used throughout the chemical process industries, are engineered to operate under the most extreme corrosive conditions.

Husky cast iron housings, plus cast inlet cones with integral inlet vanes, guide air smoothly into the wheels. The result is the low-turbulence air flow inherent in this high-efficiency design. Non-overloading is insured, regardless of system pressure.

Three arrangements are available: direct motor drive, separate belt drive or a package unit with adjustable pitch V-belt drive and motor mounted on adjustable base rails.

For full information on "Buffalo" Cast Iron Exhausters, contact your nearest "Buffalo" Representative or write us direct.

"Buffalo" Gas Absorbers are designed for highly efficient removal and/or recovery of soluble gases, vapors and mists from exhaust systems before discharge to the atmosphere. Absorption is accomplished when the contaminant is completely in solution. This is accomplished by means of an absorbent liquid sprayed on a series of fiber cells.

Field performance tests prove that efficiency of "Buffalo" Gas Absorbers ranges up to 99.8%. Applications fall into two categories: removal of low concentrations from stack gas effluents for prevention of atmospheric pollution, and the absorption of process or off-gases containing sufficient material to make reutilization economically feasible.

Bulletins AP-225 and AP-2500 will guide you to the proper "Buffalo" Gas Absorber to solve your contamination problem. Write for it today.

EVERY "BUFFALO" PRODUCT FEATURES THE "Q" FACTOR — the built-in Quality which provides trouble-free satisfaction and long life.



**BUFFALO FORGE
COMPANY**

BUFFALO, N. Y.

Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

VENTILATING • AIR CLEANING • AIR TEMPERING • INDUCED DRAFT • EXHAUSTING
FORCED DRAFT • COOLING • HEATING • PRESSURE BLOWING

CHEMICAL ENGINEERING—Inventory Issue 1957

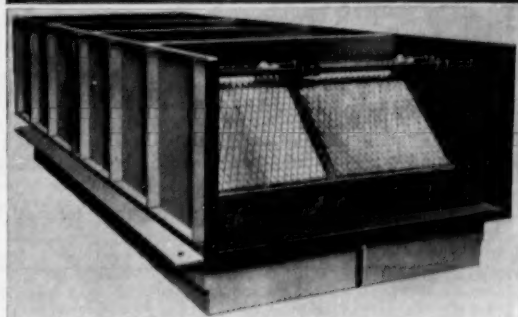
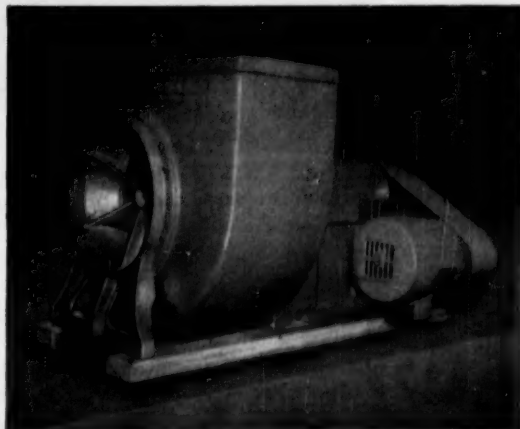
CORROSION-CONTROL PROBLEMS?

SOLVE THEM WITH THESE SPECIAL "BUFFALO" UNITS

The broad line of "Buffalo" equipment for corrosion control, plus our 80 years of engineering experience in this field, insures you of the most effective solution of your corrosive fume problems.

Whatever your specific needs, you will find the *right* "Buffalo" product with the *right* protective coating and/or corrosion-resistant parts to fill that need.

Contact your nearby "Buffalo" Engineering Representative, or write us outlining your problem. We will be glad to provide you with a prompt, practical, economical solution.



Top
"Buffalo" Cast Iron Exhauster

Bottom
"Buffalo" Gas Absorber

Inquiry Code Number for This Advertisement-435

435

FLETCHER *TORNADO*

THE CENTRIFUGAL WITH FULL AUTOMATION

Bottom
Discharge
Tri-Point
Centrifugal



CUT PRODUCTION COSTS IN HALF — The Fletcher Tornado needs no operators. It's fully automatic, gives you 24-hour production. You're certain of quality control of your product because of the uniform load and the unvarying consistency. Compare these features.

Uni-Construction—Entire centrifugal—basket, curb, drive and accessories oscillate as a unit.

Bi-Ball Swivel—Dual ball and socket on each of the three steel balancing stands assure smooth oscillation.

Tri-Point Suspension—Scientifically positioned to provide positive, effortless balance of the entire centrifugal.

Also available in manual and semi-automatic models.

F/M variable drive • Zero to maximum RPM

The New Fletcher Works, Inc.

CENTRIFUGAL
DIVISION

2nd & Glenwood Avenue • Philadelphia 40, Pa.

Send me additional information on the Fletcher Tornado Centrifugal

NAME & TITLE

COMPANY

ADDRESS

CITY & STATE

1957 INVENTORY

Processing Equipment..... Illustrated 20-page bulletin describes complete line of materials processing equipment, including mills, sifters, crushers, mixers, feeders, blenders, etc. Bul. 178.
416-7p *Sprout-Waldron Co.

Processing Equipment, Dry..... "Open-door" feature means vital parts of any unit are accessible by "one man in one minute". Cleaning, inspection and maintenance are accomplished easily. Catalog.
436A Sturtevant Mill Co.

Processing Equipment — Dryers..... Company has complete line of dryers, well equipped customers product research laboratory. Catalog 379, entitled "Bulovak Processing Equipment", is available.
436B Blaw-Knox Co.

Processing Equipment, Impervious Graphite..... Bulletin shows a typical illustration of each type of equipment, lists the standard models available. Company gives details in Bulletin No. 249.
436C Falls Industries.

Processing Equipment, Liquid..... Presents a 32 p. reference describing "Sealed-Disc" and "Disc-Pak" filters, transfer pumps, portable mixers, tanks, agitators, etc. Bulletin No. G-255.
436D Alsop Engrg. Corp.

Processing Equipment, Liquid..... Written for plant personnel, Alsop's 40-page catalog contains photos, diagrams and information on line of stainless-steel liquid processing equipment.
436E Alsop Engrg. Corp.

Processing Equipment, Rubber & Plastic..... Technical Data CE-50 deals with wide range of ACE rubber and plastic materials in piping; pumps, valves and tanks. Stop contamination and corrosion.
436F American Hard Rubber Co.

Processing Vessels, Jacketed Stainless..... Pfaudler's exclusive dimpled jacket on stainless steel processing vessels permits jacket pressures up to 150 psi without increased thickness. Bul. No. 904.
436G Pfaudler Co.

Producers, Gas..... Publication gives application data, product descriptions, dimensions, ratings & diagrams of General Electric Thermolene (endothermic) gas producers. Also operating data. Bul. GEC-1391.
436H General Electric Co.

Production Equipment..... Free folder gives full information on the many services of each company, including the history, production equipment used by Artisan, size of plants, products available.
424-5 *Artisan Industries.

Propellers..... New large diameter propellers for cooling towers and heat exchangers described in bulletin 510. Features cast-aluminum blades, steel hubs; illustrated. Send for your copy.
436I Aerovent Fan Co.

Propellers..... Smooth, vibrationless propellers for mixing, stirring, aerating, pumping, etc., perfectly balanced to avoid whip and strain on the shafts. Sizes up to 60". Request latest data folder.
436J Michigan Wheel Co.

* From advertisement, this issue

HOW TO SOLVE TRAMP IRON PROBLEMS

Dings Complete Line of Equipment Assures Positive Magnetic Separation or Detection on Conveyors, Chutes, Spouts, Pipelines, etc.

Dings magnetic separation and metal detection products are flexible industrial tools, of particular value to the Chemical-Processing Industry where product contamination as well as tramp iron damage to machinery can be costly. In the Dings complete line there are specific types and models of magnetic separators and metal detectors to solve practically any tramp metal problem you may encounter. Dings magnetic protection products are designed for use above conveyor belts, in chutes, spouts or ducts, in pipelines, etc., or are available in completely self-contained units which are an integral part of the process. They remove or signal

the presence of magnetics whether large or small, imbedded or loose, wet or dry. Even materials not ordinarily considered magnetic have been separated or detected.

Fifty-eight years' background of magnetic engineering experience is your assurance that Dings can best solve your tramp iron problems. Dings engineering service is "on call" at all times to help you make the most efficient and economical selection of the units shown here, or the many other models and types in the Dings line. Write for bulletins or further information today.

Dings "Perma-Plate"



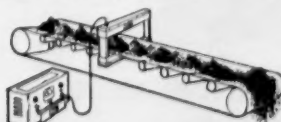
Permanent Alnico Plate Magnets—Positive removal of tramp iron from rapidly moving material is assured by Dings Dynamic Perma-Plate magnet design. The revolutionary step face, plus a wide gap between poles, attracts and holds more tramp iron from greater distances. Perma-plates are the most versatile, simplest and least expensive magnetic separators available for easy installation in chutes, ducts, slides, over belts, etc. Get details from Catalog 1205-D.

Dings "Perma-Grate"



Permanent Alnico Grate Magnets—These extremely powerful Grate Magnets afford protection in trouble spots which never before could be effectively guarded. Wing type Grate Magnets are quickly installed in, over or under hoppers of any shape, and in floor openings. Drawer type magnetic grates provide positive protection in enclosed chutes or ducts. Dings Grate Magnets are the only units of this type designed with unshielded magnets which contact the material directly to provide powerful attraction for fine particles of fuzz iron as well as larger pieces of tramp iron. Recommended for powders and granular materials. Available in any desired size. Special sizes and shapes can be furnished to meet your exact specifications. Ask for Bulletin 1213-A.

Dings "Metal Detector"



Metal Detectors—No tramp metal can pass through the search coil undetected to damage expensive equipment or impair

product purity without setting off an alarm or stopping the belt. Dings Metal Detectors are invaluable where excessive belt speeds or deep burdens may make the use of magnetic separators impractical. For operations where only tramp iron is encountered, use the Universal Series Detectors. Where all types of metal must be detected, use the EMD Electronic Metal Detector. Ask for Bulletin 1901 on the Universal Series, or Bulletin B-1920-A for details on the Electronic type.

Dings "In-Line" Rectangular Magnet



Self-Cleaning Rectangular Magnets—"In-Line" or across-the-belt rectangular magnets pull tramp iron out of deepest

burdens on high-speed belts, where other types of magnets are ineffective. Discharge is automatic and constant on this self-cleaning unit which is equipped with an endless belt that sweeps iron from the magnet face. No manual labor required for cleaning, and no danger of accumulated iron dropping on belt if power fails. "In-Line" models extract iron parallel to burden travel and at the same speed, permitting removal of long pieces before the trailing edge can rip the belt. Across-the-belt models discharge tramp iron to the side. Bulletin 1315-A gives complete details about both types.

Dings "Perma-Pulley"



Permanent or Electric Magnetic Pulleys—Installed as a head drive pulley, Dings Magnetic Pulleys provide completely automatic iron removal and discharge for material traveling on conveyor belts. Perma-Pulleys, made of highest grade permanent Alnico, have extremely high surface strength for removing large pieces of tramp iron, and for pulling fine pieces of iron out of the burden. Dings Electro-Magnetic Pulleys give a uniform, dense magnetic field which is effective on burden depths over 3 inches. Catalog C-1001-A explains features of Electro-Pulleys; Catalog C-1007-A describes Perma-Pulleys.

Dings "Perma-Drum"



Permanent Alnico Magnetic Drums—No other permanent magnetic separator compares with the Dings Perma-Drum for efficient, low-cost separation of tramp iron from material in spots where other types of magnetic separators cannot be used. It can be installed as an integral part of processing machinery, or used alone beneath apron conveyors, chutes or spouts. Operation is completely automatic, requires no attention and little maintenance. Get full details from Bulletin C-1100-A.



Dings "Magna-Trap"

Magnetic Traps for Liquid Lines—Designed for installation in liquid conveying lines to protect pumps and screens and to remove contaminating iron and iron of abrasion. It consists of a trap body and a magnetic capsule which resembles the standard Perma-Plate and utilizes an extra strong, permanently energized Alnico block. Requires no maintenance other than occasional cleaning. Ask for Bulletin B-1910-B.



DINGS MAGNETIC SEPARATOR COMPANY
4730 W. Electric Ave., Milwaukee 46, Wisconsin

AIR Engineering EQUIPMENT

1957 INVENTORY

AIR CONDITIONING



Bulletins describe methods of obtaining precise control of temperature and moisture to help you make your product in any climate at any season. Illustrated with diagrams and photographs.

BULLETIN No. 122
BULLETIN No. 112
BULLETIN No. 133

DRYING AND DEHUMIDIFYING



Bulletins illustrate air conditioning cabinet and drying installations including siccative coatings, paper, plastics, provisions, confectionery, pharmaceuticals, metallurgical uses.

BULLETIN No. 88
BULLETIN No. 112

Literature Available

Propellers, Fabricated—
Reactors

Propellers, Fabricated.... "Fabricated" propellers will do a perfect job of mixing, blending, stirring, pumping or aerating in applications requiring relatively low horsepower and not over 1750 LPM. Catalog. 438A Michigan Wheel Co.

Proportioners & Blenders.... Eliminate costly batching with closed system compounding of liquid components. Accuracy yields uniform, controlled product. Product catalog. 438B Bowser, Inc.

Pulverizer & Classifier.... Pulvocron is an air attrition impact pulverizer and classifier with controlled radial inward air classification and automatic feeder, all in one unit. Bulletin. 438C Strong-Scott Mfg. Co.

Pulverizers.... Pulverizers for Chemical and allied industries. Uniform pulverizing to needle point and microscopic finenesses. Laboratory models designed for experimental work. Request Bulletin 242. 438D Gruendler Crusher & Pulv.

Pulverizers.... Mikro-Multi-D pulverizer designed for any processing system in which purity of the product is of prime importance. Request Mikro-D Bulletin & Test Grinding Data Sheet. 438E Pulverizing Mach. Div.

Pulverizers.... New type pulverizer has lower maintenance, with no magnetic separation required, continuity of operation, minimum power, lower operating costs, higher production. Bulletin. 403 *Kennedy-Van Saun Mfg.

Pulverizers.... Valuable data on Super-fine pulverizer, a centrifugal air attrition impact pulverizer and classifier in a single unit. Covers numerous features, specifications, construction, etc. 438F Schutz-O'Neill Co.

Pulverizers, Screen.... Company offers Raymond Ray-Ducer with Screen Separator. Suited for small capacities. Easily accessible to clean or change screens. Request your copy of product bulletin. 438G Raymond Div.

Purifiers.... Model LS Hi-eF Purifier reduces cost of power operation and conserves water and steam. Installed in low pressure steam lines on exhaust side to remove oil, etc. Bul. 201. 438H V. D. Anderson Co.

Purifiers, Air, Gas & Steam.... In Bulletin 801 are listed principal applications of Anderson purifiers. New information covers improved types of internal units installed inside vessels, etc. 438I V. D. Anderson Co.

Reactors.... Company builds an extensive range of non-agitated pressure vessels for laboratory and pilot plant applications as reactors, accumulators, scrubbers, etc. Bulletins 357 and 356. 143e *Autoclave Engineers.

* From advertisement, this issue

HIGH PRESSURE STEAM HEATING



Bulletin describes method completely utilizing both the sensible and latent heat of high pressure steam. Trustworthy, long lived equipment for heating or process.

BULLETIN No. 109

AERO AFTER COOLER



Describing equipment for cooling compressed air or gases, holding temperatures below ambient atmospheric to prevent condensation of moisture. Includes application to air liquefaction systems.

BULLETIN No. 130

COOLING AND FREEZING



Bulletins describe Niagara "No-Frost" method; production of extreme low temperature for industrial uses or food freezing, pre-cooling and storage.

BULLETIN No. 95
BULLETIN No. 105

REFRIGERANT CONDENSING



Bulletins describe evaporative refrigerant condensers providing protection against scaling of tubes, controlling of compressor head pressures, saving condenser water.

BULLETIN No. 111
BULLETIN No. 123
BULLETIN No. 131

LIQUID COOLING



Cooling for chilled water or solutions, with elimination of freeze-up danger, with rapid chilling of large fluid volume and close temperature control.

BULLETIN No. 104

VAPOR CONDENSING



Providing high vacuum, independent of a large supply of cooling water. Solves the problems of water supply and disposal. Fully automatic. Saves power. Saves steam.

BULLETIN No. 129-B

MOTOR BLOWERS



Bulletin describes blowers in two series up to 4" static pressure. Available in one, two and three fan assemblies. Applicable to ventilating, drying, air conditioning.

BULLETIN No. 89

AERO HEAT EXCHANGER



Bulletins describe evaporative cooling apparatus that keeps control of temperature within two degrees by modulating the flow of air. Saves 95% of cooling water. Provides heat when needed.

BULLETIN No. 120
BULLETIN No. 124
BULLETIN No. 152

For further information write Dept. I.N.

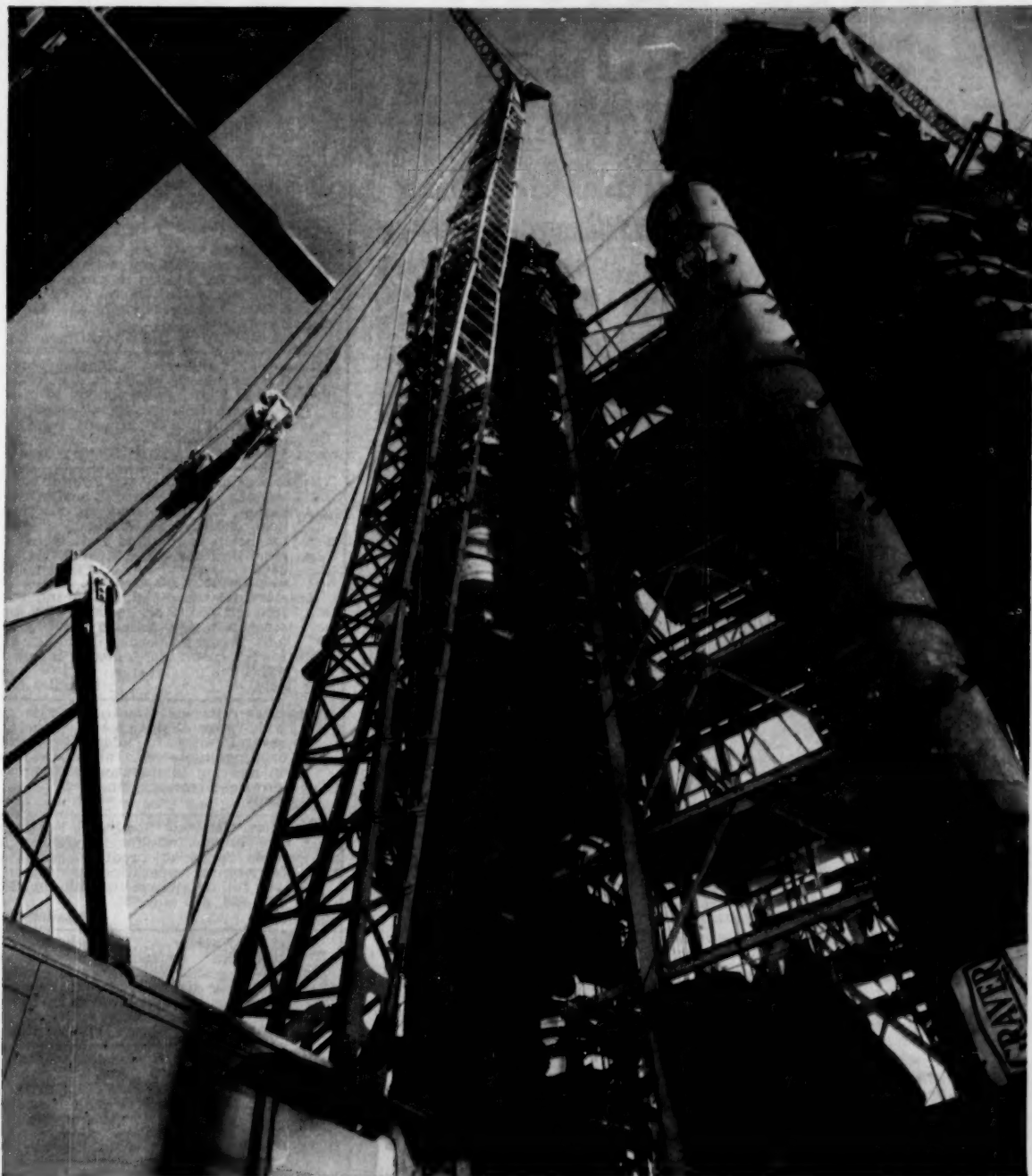
NIAGARA BLOWER COMPANY

405 Lexington Avenue

New York 17, N. Y.

Inquiry Code Number for This Advertisement-438

Inventory Issue 1957—CHEMICAL ENGINEERING



NEW MONUMENTS TO EFFICIENCY!

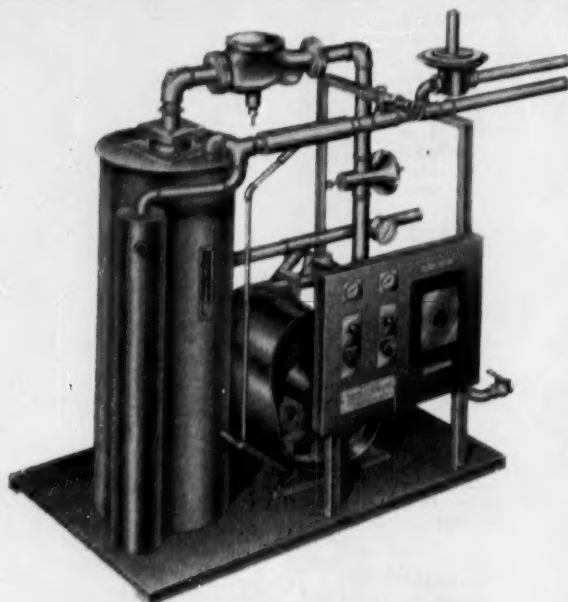
These huge stripper columns were produced with typical Graver craftsmanship. Shop fabricated from ASTM A-285 Grade C firebox quality steel, they represent one of many types of processing equipment Graver has been fabricating for 100 years.



Building for the Future on a Century of Craftsmanship in Steels and Alloys
GRAVER TANK & MFG. CO., INC.

EAST CHICAGO, INDIANA • NEW YORK • PHILADELPHIA • EDGE MOOR, DELAWARE
 PITTSBURGH • DETROIT • CHICAGO • TULSA • SAND SPRINGS, OKLAHOMA
 HOUSTON • LOS ANGELES • FONTANA, CALIFORNIA • SAN FRANCISCO

THE NEW SUB-X INERT GAS GENERATOR by T H E R M A L



**A compact . . .
economical source of inert gases**

THERMAL'S SUB-X generator offers unsurpassed operating economy and efficiency. Its unique design utilizes submerged exhaust of combustion products and permits the use of river water or other low-cost water supply as coolant.

The SUB-X generator is built around the THERMAL burner which can be fired with gas or distillate oil. Because of the burner's high heat release characteristics, the SUB-X generator eliminates refractory and reduces maintenance costs.

Each unit is supplied as a complete package with all control and safety equipment. Standard models are available in capacities up to 35,000 SCFH of inert gas. Larger capacity units can be designed to your specifications.

WRITE FOR BULLETIN #114



OTHER THERMAL PRODUCTS & SERVICES
Gas, Oil, Combination Burners • Heat Exchangers • Submerged Combustion • Air Heaters • Combustion and Heat Transfer Engineering



T H E R M A L

Thermal Research & Engineering Corp.

CONSHOHOCKEN • PENNSYLVANIA

REPRESENTATIVES IN PRINCIPAL CITIES

1957 INVENTORY

Literature Available

Reactor, Atomic—
Reactors, Research

Reactor, Atomic. . . . An atomic reactor with a polyethylene moderator can be used for applied research, radiation testing, a wide range of educational purposes. Versatile, inexpensive. TD 1284.
35-6e *U. S. Industrial Chem. Co.

Reactors, Chamber. . . . Reactor polymerizes plastic resins at controlled rate of heating and cooling to produce multiple slabs of finished product 12" to 56" square, from 1" to 5" thick. Bul. 142.
440A T. Shriver & Co.

Reactors, Continuous. . . . Votator continuous reactor controls heat of reaction for processing viscous and heat sensitive materials. Low cost operation from rapid heat transfer rate. Bulletin V250.
440B Girdler Co.

Reactors, Glassed Steel. . . . Standardized glassed steel reactors can be stocked in sizes from 50 to 4000 gallons. Program speeds shipments and lowers costs. For details, Bulletin 902.
440C Pfaudler Co.

Reactors, Glassed Steel. . . . Offer a wide range of sizes, 5 to 4,000 gals.; several ways to adapt top-head openings, agitators, seals, and valves in meeting temperature and pressure requirements. Bul. 936.
440D Pfaudler Co.

Reactors, Glassed Steel. . . . Reactors are engineered for processing a wide range of products under a variety of operating conditions. For full details specify Bulletin 939, 927, 923, 860 and 926.
135a *Pfaudler Co.

Reactors, Nuclear. . . . Bulletin N-56-8 describes aqueous homogeneous power plant, includes cross-section and flow diagram. Bulletin N-56-9 describes research-type tank reactor. 10-yr. experience.
440E Foster Wheeler Corp.

Reactors, Nuclear Research. . . . Characteristics and uses of three research reactors described in Bulletin GEA 6326-B. Specific uses, design details, safety features and experimental facilities.
440F General Electric Co.

Reactors, Research. . . . For information on GE 7-point program and research reactors: swimming pool reactor; heavy water research reactor; nuclear test reactor, Bulletin GEA-6326.
General Elec. Co.

* From advertisement, this issue

➔ **Want more information on any of these items? Just write its code number on one of the postcards inside the back cover, then mail it to us. It's that easy now.**

HIGHLY INTIMATE BLENDS IN 1 TO 2 MINUTES

Sturtevant blending continues during discharge - no segregation or flotation

Sturtevant's unique 4-way blending action begins during charging phase — continues during discharge phase. Thus highly intimate blends often are produced within 1 to 2 minutes. A complete blending cycle — from start of charging to completion of discharge — may be accomplished within 3 to 5 minutes.

Sturtevant's special action produces no particle reduction, cleavage or attritional heat — is highly effective yet gentle and safe even with explosives.

Self-cleaning, dust-sealed drum; fast, one-man accessibility

Operation of Sturtevant Blenders is completely dust-sealed; special design of stuffing box fully seals against leakage. For inspection of all models, one man simply loosens a few lugs to remove manhole cover — quickly and easily.

Receiving



Scoops cascade material as drum rotates. Movement forces material from both ends to middle. Thus blending is 4-way — circular, vertical and two lateral.

Discharging

Single gate controls charge, discharge. Blending continues throughout discharge phase. Result is no segregation or flotation — highly intimate, even blends.



Nine standard models with capacities to 900 cu. ft.

Pilot plant blending to largest production runs are handled by standard models of Sturtevant Blenders with capacities from 10 cu. ft. to 900 cu. ft. Rotary drum design is a proven space-saver, including head-room. Write for Bulletin No. 080B giving complete specifications.

Sectional view of Sturtevant Blender

'A' (solid line) shows swinging chute in blending position; 'B' (solid line) shows gate closed for blending. 'A' (dotted line) shows swinging chute in discharging position; 'B' (dotted line) shows gate open for discharging.



10 cu. ft. Sturtevant Blender at U.S. Steel Corp.'s new Applied Research Laboratory (Raw Materials Division) in Monroeville, Pa. This unit handles batches up to 500 lbs. — is ideal for pilot work and small runs.



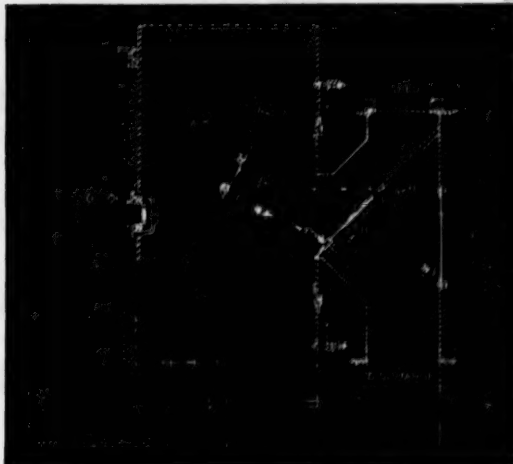
One of four 450 cu. ft. Sturtevant Blenders at Celriver Plant of Celanese Corp. (Rock Hill, N.C.). These large units handle up to 20,000 lbs. batches — have a 9-year record of meeting the most exacting blending requirements.

Fully or semi-automatic, or manually controlled operation

Constructed of carbon steel, stainless steel or Monel metal, Sturtevant Rotary Blenders are engineered to fit each customer's needs — can be supplied with injector sprays and any desired control system.

For more on Sturtevant Blenders, request Bulletin No. 080B. (See coupon for available bulletins on other Sturtevant machinery.) Write today.

See Us at the Chem Show—Booth 421



My dry-process materials are:

Desired capacity is:

Name

Firm

Street

City

Title

Zone

State

STURTEVANT MILL COMPANY, 100 Clayton Street, Boston 22, Mass.

☐ Please send me your bulletin on Blenders
Also bulletins on machines for:

☐ CRUSHING

☐ GRINDING

☐ PULVERIZING

☐ MICRON-GRINDING

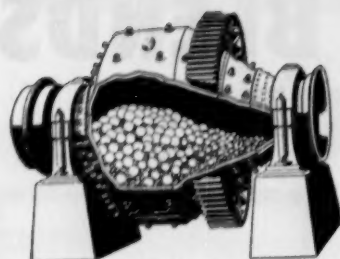
☐ AIR SEPARATING

☐ MIXING

☐ SCREENING

☐ GRANULATING

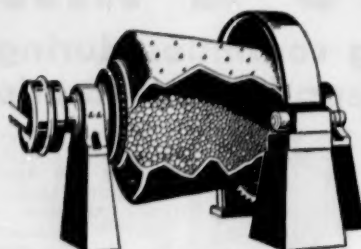
☐ CONVEYING



CONICAL MILLS



INDIRECT-FIRED ROTARY DRYERS
AND HEATERS



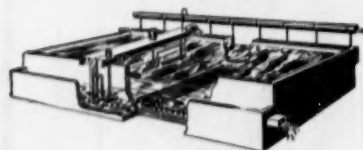
TRICONE MILLS



STEAM-TUBE ROTARY
DRYERS



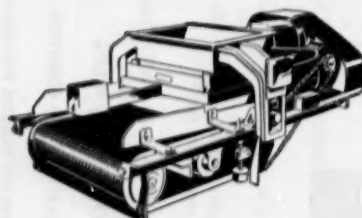
THICKENERS—CLARIFIERS



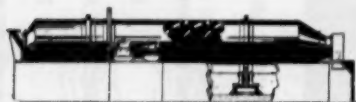
AUTOMATIC BACKWASH SAND
FILTERS



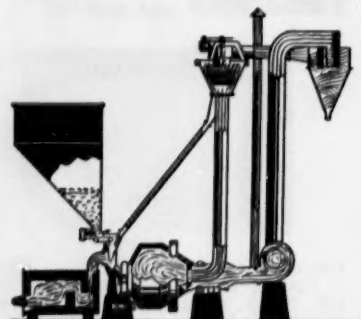
TUBE MILLS



CONSTANT-WEIGHT FEEDERS



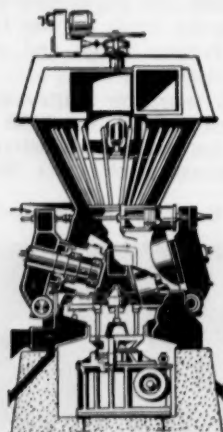
ROTARY COOLERS



AIR CLASSIFYING SYSTEMS



ROTARY AND SHAFT KILNS



DISC-ROLL MILLS

1957 INVENTORY

Literature Available

Reactors, Stainless—
Screens

Reactors, Stainless..... Bulletin 944, 16 p., lists the latest sizes and styles of stainless steel reactors marketed by this firm. Covers types of fabricated products, properties of alloys used. Request your copy.
442A Pfaudler Co.

Reactors, Stainless Steel..... Reactors are comparable in design to glassed steel in standard sizes. Custom designs include titanium, Herculoy, copper, zirconium, etc. Bulletin 944, 135b
*Pfaudler Co.

Recausticizing Systems..... "The Dorr Continuous Reausticizing System" describes the operation, equipment units & advantages of D-O's continuous system for alkaline pulping process. Request your Bul. 3301-R.
442B Dorr-Oliver.

Reclaimers Systems, Oil..... A simple economical and efficient method of restoring contaminated lubricating and sealing oil to the full value of new oil. Offers details on reclaimers in Bulletin R-160.
442C Hilliard Corp.

Rolling Machines, Jar..... Multiple batches of similar or different materials can be ground, pulverized or mixed simultaneously on a Abbe jar rolling machine. Details in Catalog 79.
442D Abbe Engineering Co.

Rolls, Crushing..... Reduce soft to hard 2 in. & smaller material to from 12 to 20 mesh with minimum fines. Eight sizes: rates to 87 tph. Types: Balanced, Plain Balanced, & Laboratory Rolls. Bul. 065.
442E Sturtevant Mill Co.

Samplers, Automatic..... Heavy duty units, extra rigid track and ball-bearing wheels assure positive travel and timing of sample cutter. Available in stainless steel. Full details available in Bulletin S1-B4.
442F Denver Equipment Co.

Scalpers, Reel..... Company offers bulletin describing their Reel Scalper, the first all-metal reel scalper. Gives assembly diagram, list prices, dimensions, and describes features.
442G Strong Scott Mfg. Co.

Screening Equipment..... Company offers screens for every water, sewage and industrial waste: coarse screens for removal of large solids and fine screens for removal of small solids. Book 2587.
442H Link-Belt Co.

Screen, Slurry..... Unit for wet-screening non-fibrous slurry feeds described in bulletin 2300. Combines high capacity screening in the 8-48 mesh range with high efficiency.
442I Dorr-Oliver Co.

Screens..... "Symons" rod deck screens offer low screening cost, big capacity, for wet and sticky ores, minimum maintenance. Bulletin 94C covers economy, capacity, vibrator, housing and screen deck.
442J Nordberg Mfg. Co.

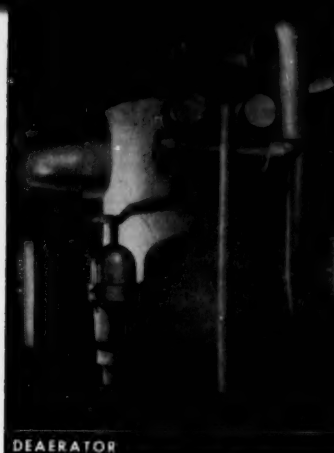
* From advertisement, this issue

Write for general catalog 100-A-11 which describes the entire Hardinge line.

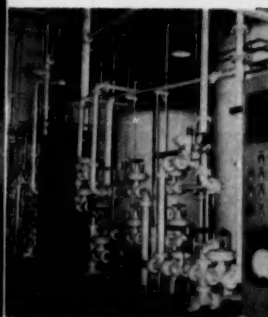
HARDINGE

COMPANY, INCORPORATED

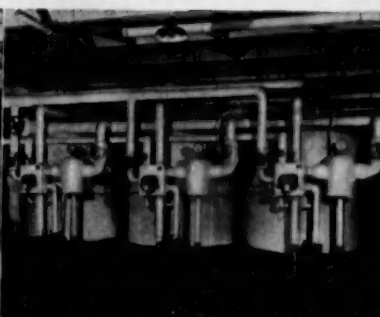
YORK, PENNSYLVANIA • 240 Arch St. • Main Office and Works
New York • Toronto • Chicago • Hibbing • Houston • Salt Lake City • San Francisco



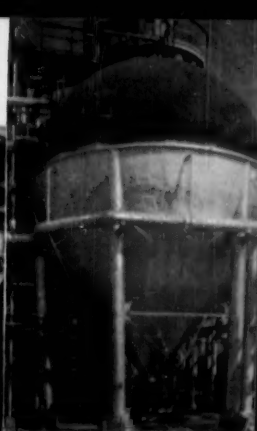
DEAERATOR



DEMINERALIZER



ZEOLITE SOFTENER



HOT PROCESS SOFTENER

Engineering and Equipment by **Cochrane**
assure complete water conditioning service

For over half a century Cochrane Corporation has pioneered major developments in the field of water conditioning. Today, Cochrane leads in installation of deaeration, hot process and hot lime zeolite equipment.

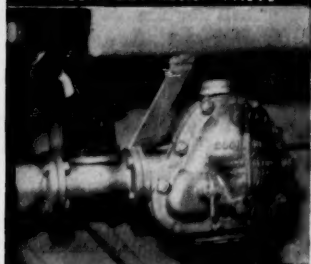
Development of the Cochrane Hydromatic Valve sets a new standard in automatic control for Ion Exchange Processes.

Cochrane's background as heat engineers has also been responsible for the development of steam specialties recognized and used throughout industry today. The C-B Jet Pump improves heat transfer, reduces drying costs with resultant product improvement and usually increases production output.

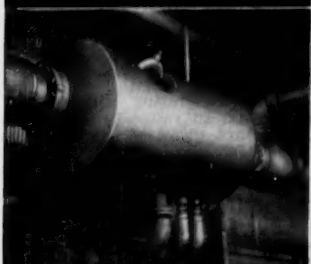
This complete service, available at Cochrane, provides a single responsibility for continuous satisfactory operation of every installation. It is an assurance that guarantees will be met. Why not consult Cochrane?



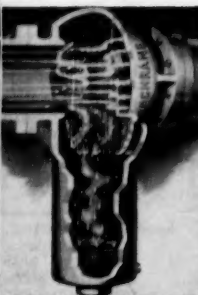
MULTIPORT RELIEF VALVE



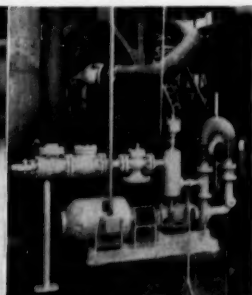
MULTIPORT DRAINER



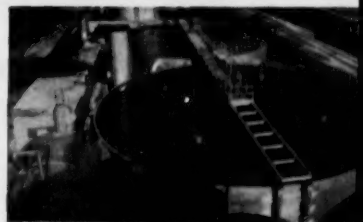
STEAM PURIFIER



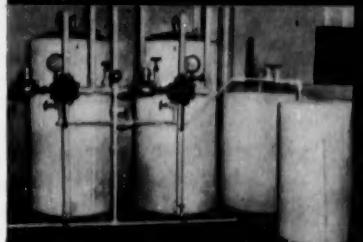
OIL SEPARATOR



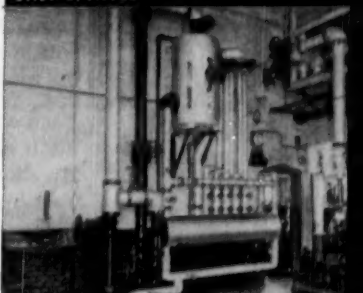
C-B SYSTEM



REACTOR



SALT SPLITTER



CONTINUOUS BLOW-OFF



FILTER

Cochrane
CORPORATION

Inquiry Code Number for This Advertisement-443

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Cochrane Water Conditioning Ltd., Toronto 4, Montreal 1, Winnipeg 1, Canada.

Representatives in 30 principal cities in U.S.; Paris, France; La Spezia, Italy; Mexico City, Mexico; Havana, Cuba; Caracas, Venezuela; Santiago, Chile; San Juan, Puerto Rico; Honolulu, Hawaii.

Pottstown Metal Products Division—Custom built carbon steel and alloy products

Demineralizers • Hot Process Softeners • Hot Zeolite Softeners • Dealkalizers • Reactors • Deaerators • Continuous Blowoff Systems • Condensate Return Systems • Specialties



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McGRAW-HILL PUBLICATIONS



1957 INVENTORY

Literature Available

Screens—
Screens, Vibrating

Screens......Symons V Screen is specifically designed for fine screening. Multiplies screening action by combining centrifugal and gravitational forces. Full details are available in Bulletin No. 243.
444A Nordberg Mfg. Co.

Screens......12 p. bulletin describes Walker Back Cleaned Bar Screen. It gives complete design notes, dimension limits, design and wiring diagrams, specifications, etc. Request a copy of Bulletin 20S86.
444B Walker Process Equipment.

Screens, Gyratory......All-metal unit separates dry granular materials into two, three and four predetermined sizes. Information on gyratory screens in Bulletin 07B8446. Send for a copy.
444C Allis-Chalmers Mfg. Co.

Screens, Gyrocentric......Unique gyrocentric action removes any lumps from the granulated product, and assures high screening rates for the various grades. Details available on request in Catalog 507.
444D Patterson Foundry & Mach.

Screens, Vibrating......Bulletin describes construction features of vibrating screens for handling feed up to 6 and 20 inches and coal up to 8 and 24 inches. Details in Bul. 07B6151D.
444E Allis-Chalmers Mfg. Co.

Screens, Vibrating......Allis-Chalmers vibrating screens are built in single and multiple-deck models for use in scalping, wet or dry sizing, washing, rinsing, dewatering, and media recovery. Details.
444F Allis-Chalmers Mfg. Co.

Screens, Vibrating......Gives fast, clean separation without blinding. Even, smooth flow of material because of patented "true-circle" eccentric action. Full details available in Bulletin S3-B11.
444G Denver Equipment Co.

Screens, Vibrating.....Vibrating screens for accurate dry screening of light or fine materials. Sizes closely through small screen openings; screens corrosive and toxic chemicals safely. Book No. 2377.
444H Link-Belt Co.

Screens, Vibrating......For high-capacity screening of a broad range of materials — "CA" vibrating screens are your answer. In range of sizes to suit all plant capacity requirements. Book 2554.
444I Link-Belt Co.

Screens, Vibrating......"Symons" Type F horizontal, vibrating screens—screening action controls flow of material, accurate sizing, require minimum headroom, range of deck combinations. Bulletin 248.
444J Nordberg Mfg. Co.

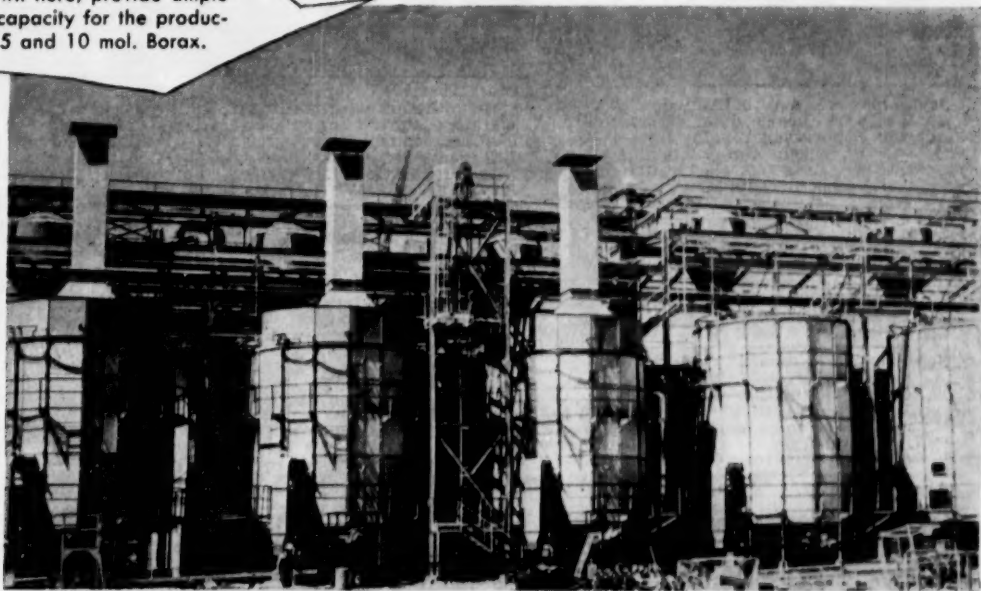
Screens, Vibrating......Complete information on the Sweco screen separator is featured in a 22-page catalog, S-56-1. Reader will find operating and application data for many process industries.
444K Southwestern Engineering Co.

* From advertisement, this issue

U. S. BORAX INVESTS IN AMERICA'S FUTURE

with the World's Largest Borax Plant
at Boron, California

7 TURBO-DRYERS® (5 of which are shown here) provide ample drying capacity for the production of 5 and 10 mol. Borax.

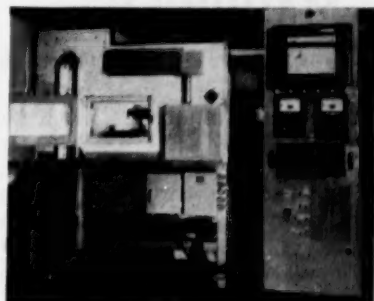


The TURBO-DRYERS® close temperature control, uniform drying time, practically dust-free operation and low heat and power consumption make them the choice of engineers faced with the problem of meeting difficult and exact product specifications. Such added features as intermittent blending and negligible attrition often narrow the choice to a TURBO-DRYER® for quality drying of sen-

sitive and fragile products. Investigate also the advantages of WYSSMONT Turbo-Dryer-Coolers, and Closed Circuit Systems for safe continuous drying in inert atmosphere, continuous desolventizing with solvent recovery, continuous purification by entrainer sublimation, continuous solid gas reaction and drying with superheated vapors. Write for particular bulletin.

TURBO-DRYER® SYSTEMS are available in a wide range of sizes from packaged pilot plant units with a 60 sq. ft. tray area to giant outdoor units with 18,000 sq. ft. Your inquiries are invited. Write to: Wyssmont Company, Inc., 42-01C 27th St., (Bridge Plaza South), Long Island City 1, N. Y. Representatives in principal cities.

EXCLUSIVE NEW LABORATORY TEST-DRYER developed by Wyssmont records reliable data on which to base design for full-scale performance.



WYSSMONT
COMPANY, INC.

DRYING & PROCESS ENGINEERS

The Wyssmont TURBO-DRYER® is applicable to continuous drying with SOLVENT RECOVERY, continuous purification by SUBLIMATION, continuous SOLID-GAS REACTIONS, and as a DRYER-COOLER.

New Process Equipment

1957 INVENTORY

Literature Available

Separators—
Still, Molecular

Separators, 4 p. bulletin describes Centrico's heavy duty separators with applications ranging from extraction of penicillin & vitamins to the purification & clarification of diesel fuels. Bulletin 2126.
446A Centrico, Inc.

Separators, Company offers information on Power-Flo Separator, a multi-purpose separating system in one compact machine. Includes assembly diagram, specifications, etc. Bulletin TSB6-586.
446B Strong Scott Mfg. Co.

Separators, Company offers information on Feeder-Magnetic Separator and Self-Cleaning Spout-Magnet. A positive feed control mechanism embodying a self-cleaning magnet.
446C Strong Scott Mfg. Co.

Separators, Air, Controlled centrifugal whirl by balancing forces separates rapidly, efficiently, cement, lime, clay, talc, ceramics, refractories, phosphates, coal, other materials. Bulletin 087.
446D Sturtevant Mill Co.

* From advertisement, this issue

Free FOLDERS DESCRIBING TAYLOR-STILES MACHINES

Folder

Plastic Pelletizers	App. 210
	App. 213
Rubber & Plastics Cutters	App. 202
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Bale Breakers	App. 215
Thread Waste Cutters	App. 201
Single and Tandem Rag Cutters	App. 214
Paper Shredders	App. 204
General Purpose Precision Cutters	App. 212

Write today for these Free
Informative Folders

TAYLOR, STILES & CO.
320 Bridge St. Riegelsville, N. J.

Separators, Cylinder, Uni-Flow Cylinder Separators are recommended when you need less accuracy or more flexibility. Folder describes the sizing methods of this machine.
446E Hart-Carter Co.

Separators, Disc, Carter discs size by length differences. Sizes of disc separators differ in number of discs and in diameter of discs. Wide range of pocket sizes and styles. Product folder.
446F Hart-Carter Co.

Separators, Drum, Brochure describes line of Hi-Powr permanent, non-electric magnetic Drum Separators. Automatic removal of iron from chemicals, food, grain, plastics, etc. Bul. B54-1.
446G Eriez Mfg. Co.

Separators, Drum, Describes a drum separator for heavy media plants. Called the "WPD" it is a powerful wet drum permanent magnet unit, designed for efficient recovery. Request Bulletin 87.
446H Stearns Magnetic.

Separators, Drum, Stearns drum-type magnetic separators protect your product—purify it by removing contaminating iron; protect your plant from spark-induced explosions. Bulletin 93EB.
446I Stearns Magnetic Mfg. Co.

Separators, Electro Dynamic, High tension or electro dynamic separators described in Bulletin HTB-103 are compared with electrostatic separators. Covers Lab. and industrial units, minerals handled.
446J Carpeo Mfg.

Separators, Entrainment, If liquid entrainment is a contributing factor in design or operation, Metex Hi-Thruput Mist Eliminators will assure greater production and improved quality of yield. Request bulletin ME-6.
446K Metal Textile Corp.

Separator, High Tension, New high tension separator for laboratory and pilot plant use is described in 2 p. bulletin HBP-103. Design characteristics, power requirements, operation and application data.
446L Carpeo Mfg., Inc.

Separators, Industrial, Bulletin explains basic separation principles in detail, and presents a listing of centrifugal applications. Send for your copy. Request Bulletin 2173.
446M Centrico Inc.

Separators, Liquid, Continuously separate emulsions in steam distillations, solvent extractions, organic reactions. For dewatering of solvents and hydrocarbons, recovery of liquids. Bulletin SC1044.
446N Selsco Corp. of America.

Separator, Liquid-Gas, How the Selsco Liqui-Jector removes entrained liquids and solids from air, gas and steam systems is explained in Bulletin S-1052. Three models up to 7,000 acfm.
446O Selsco Corp. of America.

Shakers, All-metal Gyro-Shaker combines gyratory and reciprocal motion in sifting, separating and grading. Used for high capacity applications requiring relatively coarse screens. Bul. 160.
416-71 *Sprout-Waldron Co.

Shakers, Reciprocating, The Rezipro-Glide Shaker comes in two models, Models R-7, R-8, both offering modern design, rugged construction, precision built, quiet operation, etc. Circular.
446P New Brunswick Scientific Co.

Sifter, Illustrated specification sheet B-106-RA describes operation of the Ro-Ball Airmatic, a combination dump bin, sifter and airmatic conveyor for handling dry materials similar to wheat flour.
446Q Cleveland Automatic Mach.

Sifters, Thousands of products, wet or dry, from flour to wood chips, are sifted through efficient low-cost, high-production Ro-ball sifters. Many models available. Day Ro-ball Bulletin.
446R J. H. Day Co.

Sifters, Gyro-Whip sifters with stainless steel or wooden sieves sift, separate and grade a wide variety of dry, pulverized materials. Floor-mounted, dust free, sanitary. Request Bulletin 135-A.
416-7u *Sprout-Waldron Co.

Softeners, Cochrane Zeolite Softeners control every phase of the cycle, service, backwash, regeneration, rinse and back to service. Company offers details Publication 4520-A.
446S Cochrane Corp.

Softeners, Company has pioneered with versatile Hot Process Softener and Hot Zeolite, which provides zero hardness, lowers solids in medium and high pressure boilers. Publication 4801.
446T Cochrane Corp.

Softeners, Bulletin covers Cochrane Hot Lime-Zeolite softeners—method of operation, expected results, chemical savings and simplicity of operation. Company offers free Publication 4801-A.
446U Cochrane Corp.

Softeners, Water, Bulletin describes principle of operation, applications and construction features of L. A. Zeolite Water Softeners. Sample specifications, layout, dimensions. Bulletin 105.
446V L. A. Water Softener Co.

Spray Booth, Spray booths of every type, size and application are featured in 36 p. catalog I-7000. Full descriptions and specifications for custom design units and ready-made units.
446W DeVilbiss Co.

Spray, Launder, Leaflet tells how non-clog launder sprays can reduce plant launder spray water consumption from 40% to 60%. Durable, resilient rubber diaphragm ejects foreign matter.
446X Booth Co.

Stills, Centrifugal, Large, low-priced, laboratory centrifugal molecular still can simulate on a pilot-plant scale the molecular distillation obtained in costly commercial stills. Sheet 3-10.
446Y Consolidated Electrodynamics.

Stills, Molecular, Molecular distillation can process organic compounds with molecular weights from 200 to 1250 and silicones and halocarbons to 4000. Write for brochure on Rota-Film still.
431 *Arthur F. Smith Co.

Renneburg Reliability...

*The Answer to Your
Chemical Processing
Problems!*

Serving the process industries for over 80 years, Edw. Renneburg & Sons Co. has been designing and manufacturing special machinery for chemical producers since before the turn of the century.

Edw. Renneburg & Sons Co. maintains a staff of trained, experienced engineers... an alert group which is constantly seeking better chemical processing methods, as well as simplifications and improvements in the present Renneburg line.

DRYERS



Above, left: DehydrO-Mat Dryer (Patented)—The varying diameter cylinder regulates air and material velocities... controls temperature drop and product retention time... assures gentle drying.

Above, right: Straight Shell Dryer—Heavy-duty rotary unit with furnace, oil burner, breeching, and air handling system.

COOLERS



Above, left: DehydrO-Mat Cooler (Patented)—This counter-current cooler features dustless operation, large capacity, compactness, and positive controlled unloading.

Above, right: Rotary Cooler—Highly efficient shelf design for quick thermal release... with special feed and discharge breechings. Rotary seals prevent air losses.

AMMONIATORS/GRANULATORS



Continuous Combination Ammoniator-Granulator—Two operations in one... saves money, time, and space... offers higher rate of ammoniation and extreme flexibility.

Individual Ammoniators* and Granulators* are also available to suit customer's preference or requirements.
**TVA Licensed Manufacturer*

PILOT PLANTS

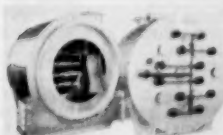


Above, left: Stainless Steel Pug Mill Mixer, Gas-Fired Dryer, and Cooler, with air handling systems. This group features extreme versatility.

Above, right: Three basic pilot units... Continuous Combination Ammoniator-Granulator, Dryer, and Cooler, with air handling systems.

Other Pilot Plant Units are available for determining the equipment best suited to your applications.

HEAT TRANSFER EQUIPMENT



Above, left: Refractoryless Furnace—20 million BTU, double shell, air cooled unit eliminates cost of refractories. Gas firing equipment includes spark plug ignition, safety and temperature controls.

Above, right: Indirect Cooker, Dryer or Cooler—Features new type internally-heated or cooled screw, designed with jacketed shell. ASME Code construction.

Dryers (Air and Steam) - Kilns - Furnaces and Combustion Equipment - Calciners - Coolers - Fans - Collectors - Air Pollution Control Systems - Ammoniating and Granulating Units - Pug Mills - Direct and Indirect Cookers - Evaporators - Mixers - Elevators - Conveyors - Pilot Plant Units - Continuous Screw Presses - Roasters - Reactors

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2635 Boston Street, Baltimore 24, Maryland

Process Engineering - Chemical and Fertilizer Plant Equipment
Custom Equipment for the Chemical Industry

Literature Available

Stills, Pot—
Wire Rope

Stills, Pot..... Company offers information on an improved type of high vacuum pot still, which utilizes direct agitation of the distillate. Vacuum range as high as .1 microns Hg.
448A Arthur F. Smith Co.

Strainers..... Yarway fine screen straining protect equipment, prevent dirt, scale, chips, welding dross, etc. from reaching working parts. Screen is easily removed for cleaning. Bulletin S-204.
448B Yarnall-Waring Co.

Strainers, Line..... Remove dirt, scale, rust and other solids from liquids flowing in any pipe line system. Protects and prolongs life of pumps, meters, loading valves, etc. Full details in Bulletin F-36.
448C Jordan Corp.

Tables, Concentration..... Separate materials into bands & handle coarsest sands with good results. Ideal for separation of groups of particles having similar range of specific gravities. Bul. T1-B3.
448D Denver Equipment Co.

Tank Vents & Flame Arrestors..... BS&B tank vents, flame arrestors, and arrestor vents combining the features of the above are described in Catalog 76-16. Request your copy now.
448E Black, Sivals, & Bryson.

Tanks, Mixing..... How construction of Pfaudler mixing tanks makes them fast in operation, sturdy and easy to clean is told in Bulletin 941. Capacities and dimensions are given.
448F Pfaudler Co.

Thickeners..... Enclosed, running-in-oil tread motion. Patented spiral rakes move settled solids to center discharge with continuous motion, rapid removal of solids tends to eliminate overload. Bul. T5-B5.
448G Denver Equipment Co.

Thickeners..... Spiral rakes of Hardinge thickener compress solids to maintain high density underflow. "Auto-Raise" drive mechanism prevents overloading as the underflow is thickened. Bul. 31-D-11.
448H Hardinge Co.

Thickeners, Continuous..... Uses—washing slurry to remove impurities... thickening prior to filtration... thickening instead of filtration... decantation involving "fines." Request Bulletin 122.
448I T. Shriver & Co.

Traps, Power..... Offer magnetic, pneumatic, automatic action to: free air and gas lines of entrainments, assist air and gas dehydrating equipment, discharge condensate. Bulletin 501.
448J Hankison Corp.

Trays, Bubble..... Glitsch "Truss-Tyne" bubble trays serve all processing plants... chemical—petro-chemical—natural gasoline—petroleum refining—AEC—etc. Technical Bulletin 150.
448K Fritz W. Glitsch & Sons.

Trays, Ripple..... High capacity and simple construction of ripple trays have effected major savings in first cost over conventional bubble cap trays. Details available in illustrated booklet.
448L Stone & Webster Engr. Corp.

Trays, Turbogrid..... Special construction of Turbogrid tray has made all of the processing advantages of corrosion resistant glassed steel available in tray type columns. Information available.
448M Pfaudler Co.

Utilizers..... Standard Utilizer assemblies and builds unit-loads in desired shape and size, automatically, directly from conveyor line. Expedites production, cuts handling costs. Bulletin 0-12.
448N Standard Conveyor Co.

Venturi Tubes..... For venturi tube design features, comprehensive dimensional data, capacity tables, recovery tables and similar information see 4-page Bulletin 110-N1. Various constructions.
448O Builders-Providence.

Vessels, Pressure..... Developed by specialists producing pressure vessels, vacuum tanks, towers, reactors, weldments and sub-assemblies. Request this booklet, "Facilities and Products."
448P Newport News Shipbuilding.

Water..... Nation-wide water supply problems, particularly the need for bigger municipal water and sewage facilities, are discussed in a new booklet entitled "Your 1,100 Gallons."
448Q Fairbanks-Morse & Co.

Water Supply Installations..... Layne promises careful research and calculations, truthful recommendations for any industrial water problem, large or small. Request General Services Bulletin 100.
448R Layne & Bowler, Inc.

Water & Waste Treaters..... Inflico's complete line of equipment and processes for treating municipal and industrial water, sewage and industrial waste are covered in Bulletin 80 now available.
448S Inflico, Inc.

Welding Repair..... New bulletin tells how various welding processes are used to repair broken or worn machinery, structures, storage tanks and material-handling equipment. Repairs follow ASME code.
448T Metalweld, Inc.

Wire..... "The Cambridge Wire" gives up-to-date information on applications of all Cambridge products in specific industries, technical articles, and the latest development news.
448U Cambridge Wire Cloth Co.

Wire Cloth..... Illustrated within 94 page catalog is line of industrial wire cloth, screens and wire cloth products. Completely new section gives standard trade definitions and ordering information.
448V Cambridge Wire Cloth Co.

Wire Cloth..... Catalog describes company's facilities for fabricating wire cloth parts. Wire cloth parts for screening, filtering and special uses. Provides useful metallurgical data. Request your copy.
448W Cambridge Wire Cloth Co.

Wire Cloth..... "Multi-Matter" shows how wire cloth helps filter press users. Metallic fiber cloth blankets, plastic filter leaves, particle retentivity of metallic filter cloths, etc. Vol. 1, No. 2.
448X Multi-Metal Wire Cloth Co.

Wire Cloth..... Wire cloth made of all malleable metals such as aluminum, brass, bronze, phosphor bronze, copper, monel, Nichrome, nickel and stainless steel. Company offers Catalog E.
448Y Newark Wire Cloth Co.

Wire Cloth..... Company supplies a complete range of weaves, mesh sizes, gauges and metals to cope with all types of chemical conditions. Catalog is available to you on request.
142 *Buffalo Wire Works.

Wire Cloth & Filter Cloth..... All standard grades of wire cloth, filter cloth, Neva-Clog metal sheet filter medium. Mykro-Pore metallic filtering or straining medium and fabricated components. Cat.
448Z Multi-Metal Wire Cloth Co.

Wire Cloth & Screen..... In order to improve your filtering, straining, sizing operations, specify Ludlow-Saylor wire cloth & screen. Complete details in Condensed Screen Reference Catalog.
448AA Ludlow-Saylor Wire Cloth.

Wire Rope..... Complete line of pre-formed wire rope, wire-rope accessories and boom-cable assemblies are discussed in 16-page bulletin DH-129-B. Covers construction features, applications, diameters.
448BB American Chain & Cable Co.

14 Months

Literature listings in this Inventory Issue cover the period of August 1956-September 1957. Fourteen issues of Chemical Engineering inventoried for your convenience. Complete your files with manufacturers' data.

This master checklist of available data is easy to use. Simply write the code numbers on one of the postcards inside the back cover. Fill it out and mail. It's easy. And you should have your new bulletins within...

14 Days

* From advertisement, this issue

Blower, Leakproof

Handles dangerous gases at extreme conditions.
(449A)

... Leakproof centrifugal blower handles corrosive, toxic and radioactive gases under extreme temperature and pressure conditions. Blower will

develop 150-ft. head in 2,000-psi. system. It operates at gas temperatures to 500 F.—*Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.*

Compressor, Axial

Efficient over extended range.
(449B)

... Full control of stator blades on axial compressor extends range of high-efficiency operation. Capacity can be varied almost as readily as with centrifugal compressors. Yet machine

maintains high efficiency and pressure rises at part load points which are characteristic of the axial compressor.—*Allis-Chalmers Mfg. Co., Milwaukee 1, Wis.*

Compressor, Multi-Stage

For air, ammonia, most hydrocarbons.
(449C)

... Multi-stage centrifugal compressor in five casing sizes covers capacity ranges from 570 to 82,000 cfm. per casing with discharge pressures to 950 psi. Large bleed volumes in and out of this centrifugal compressor

can be accommodated, permitting handling different levels of refrigeration or stepwise compression of process loads and knockouts with one compressor casing.—*Worthington Corp., Harrison, N. J.*

Compression System

Provides high-pressure gas for development.
(449D)

... Cardox central compression system expedites and simplifies design and testing of systems and processes that involve high pressure. Air or gas

can be delivered continuously at pressures between 3,000 and 12,000 psi.—*Cardox Corp., High Pressure Air Div., Chicago 1, Ill.*

Damper, Fan Inlet

Controls air volume and pressure.
(449E)

... Volume and pressure of air delivered by airfoil centrifugal fans is controlled by variable inlet vane damper that fits into fan housing. Acting as manual or automatic out-

put control, damper reduces power consumption, operating costs. Damper is available for fans from 12 through 80½ in. dia.—*Chicago Blower Corp., Franklin Park, Ill.*

Dispenser, Acid

Delivers measured amount of acid to carboys.
(449F)

... With positive-displacement chemical pump, you can pump a measured amount of acid into a glass reservoir, then drain by gravity into carboy or drum. Pump has Teflon fins, will dis-

charge from ¼ to 11 gpm. Glass reservoir size can be chosen to meet requirements of application. Electronic float control is provided.—*Electro-Graphic Co., Cambridge 42, Mass.*

Engine-Compressors

For continuous operation.
(449G)

... Self-powered compressors, in three sizes with capacities ranging from one to five tons, are offered where adequate electricity is lacking.

Units are intended for mobile use or for cooling any enclosure needing self-powered system.—*D. W. Onan & Sons, Inc., Minneapolis 14, Minn.*

Exhauster

Vents gases, fumes without exposing fan or motor.
(449H)

... Developed for industrial venting and commercial heating plants, power exhauster runs without exposing fan blades or motor to exhaust gases. Because neither fan nor motor are exposed (they're mounted outside exhaust unit), maintenance cost is reduced materially. Downtime is eliminated. In the event of power failure, vent lines are unobstructed by idle fans and motors. Exhausters are built for vent diameters of 12, 14, 16, 18, 20, 22, 24 and 30 in.—*Quickdraft Co., Canton 1, Ohio.*

**Fans, Axial**

Plastic, for fume service.
(449F)

... Problems of maintenance due to worn coatings are eliminated with industrial axial fans made from solid plastic—either Rigidon rigid vinyl or

Rigidon glass-reinforced plastic. Fans are suitable for corrosive services.—*Heil Process Equipment Corp., Cleveland 11, Ohio.*

FOR MORE INFORMATION on any item in this section, write its code number on one of the Reader Service postcards (inside back cover) and mail. It's fast and easy.

New Pumps, Blowers & Compressors

1957 INVENTORY

Fans, Corrosion-Proof

Of resin-bonded fiber glass. (450A)

... Type FG fans are improved, corrosion-resistant, impact-resistant fume fans constructed of resin-bonded fiber glass. They withstand wide

range of corrosives up to 225 F. And fans are more versatile, lighter and reliable at reasonable cost.—*Buffalo Forge Co., Buffalo, N. Y.*

Fans, Exhaust

For corrosive service. (450B)

... Centrifugal fans are designed so that no metal parts are exposed to corrosive vapors. Fan casing is made entirely of resin-bonded glass fiber. Steel fan blades are balanced, covered

with resin-bonded glass fiber and re-balanced before assembly. Polyester resin used in construction is fire and corrosion resistant.—*duVerre, Inc., Buffalo 2, N. Y.*

Fans, Industrial

Embody latest fan engineering techniques. (450C)

... Three fans give user choice of wheel designs when considering a given installation. Radial-blade fan, Type CR, has high-volume, high-pressure characteristics that make lower first cost possible on many applications. Its mechanical efficiency is

greater than 78%. Type BLH fan, for Classes II through IV heavy duty industrial air handling, offers mechanical efficiency of 86%. Fan with airfoil blades rates 92% mechanical efficiency.—*Buffalo Forge Co., Buffalo, N. Y.*

Propellers

Improved for cooling towers, heat exchangers. (450D)

... Al-Metal propellers are said to be unique modification of Macheta airfoil propeller. Propeller blades, cast of aluminum, are engineered to move maximum volumes of air per unit of power consumed. Blades are balanced

individually so that they may be interchanged in any assembly. Blade root fits snugly into socket. Peripheral key on root engages keyway in socket to provide maximum strength.—*Aerovent Fan Co., Piqua, Ohio.*

Pump, Centrifugal

Standard, close-coupled type. (450E)

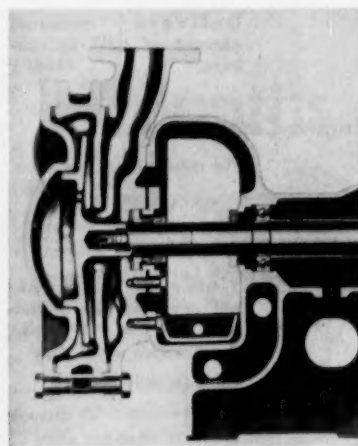
... To save both space and investment, investigate Type GSC, standard, close-coupled centrifugal pump. Units handle wide range of general

applications that do not necessarily require a more costly engineering pump.—*Dean Bros. Pumps, Inc., Indianapolis 7, Ind.*

Pump, Centrifugal

Handles wide range of corrosive materials. (450F)

... Glassed-steel centrifugal pump withstands broad range of severe corrosive conditions and, at the same time, meets pumping standards of process industries. All inner surfaces of pump are glassed so that liquid never contacts metal. Since glass resists all organic and inorganic acids (except HF), and alkalis up to pH 12 at 212 F., there's little chance for corrosion of pump. Glass exerts no catalytic effect on liquid being pumped, therefore won't react with material to contaminate the end product. Pump withstands quick changes in liquid temperature up to at least 200 F. differential and higher. Goulds-Pfautler (co-designer) centrifugal pump will be built in four sizes for capacities up to 700 gpm. and heads up to 140 ft.—*Goulds Pumps, Inc., Seneca Falls, N. Y.*



Pump, Metering

Mounted on top of barrel or drum. (450G)

... Controlled-volume pump is designed for mounting on barrel heads. In this position, pump can meter toxic or corrosive chemicals from upright

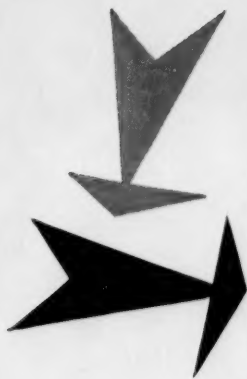
55-gal. barrels against pressures up to 100 psi. Repetitive pumping accuracy is $\pm 1\%$.—*Milton Roy Co., Philadelphia 18, Pa.*

Pump, Oxygen

Transfers from liquid to gaseous state. (450H)

... Pump and vaporizer pumps oxygen, nitrogen or argon from a liquid at low temperature and pressure to a gas at any desired pressure up to

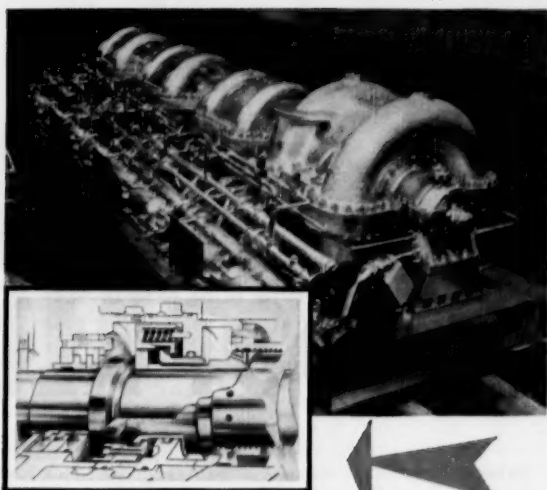
5,000 psi. Pump can be manufactured in a range of capacities from 250 to 30,000 cfm.—*Superior Air Products Co., Newark, N. J.*



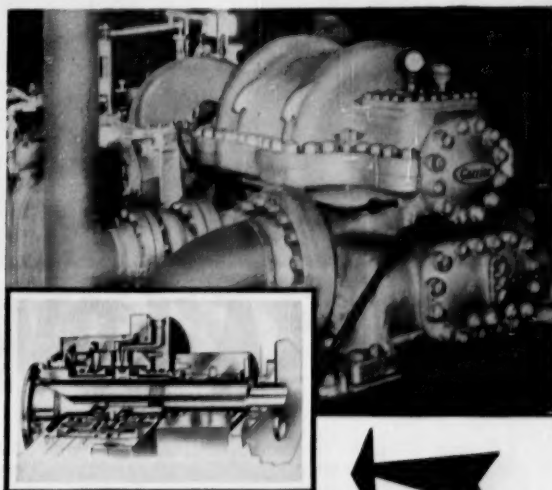
Which is the best way to seal oxygen and hydrocarbon gases?

That depends on the type of gas, its pressure, its toxicity and other factors. No matter what the sealing problem, Carrier Centrifugal Compressors are designed with the right seal for the specific job. For example, an iso-seal is the answer for holding various hydrocarbon gases, especially if the gas must not be contaminated by the sealing fluid or vice versa. At the other extreme, the new Carrier water seal is the correct selection for holding such gases as oxygen where a mixture of oil and the gas cannot be tolerated even in the most minute quantity. For complete information on various compressor seals, call your nearest Carrier office or write Carrier Corporation, Syracuse, New York.

Carrier



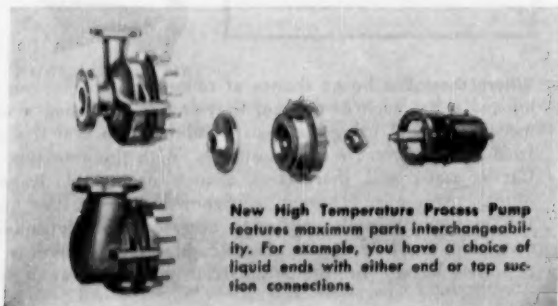
To separate the gas stream from the seal oil system, iso-seals are used in each of these four Carrier Centrifugal Compressors which handle ethylene and mixed hydrocarbon gases in an ethylene plant in Baton Rouge. In seals of this type, seal oil, supplied at slightly higher pressure than suction, is kept from the gas stream by a floating carbon ring. The seal oil pressure is then broken down to atmosphere through one or more narrow floating babbitt steel rings; the number depending on the pressure breakdown. On shut-down, this is a positive seal.



Where there can be no chance of contamination between an oil and a gas such as oxygen, Carrier has developed a new mechanical seal using water as a lubricant to seal the gas from suction pressure to atmosphere. With this new type of Carrier water seal, there is no chance for possible leakage of expensive gas. Through efficiency of design, the number of controls and auxiliaries necessary for dependable operation are held to an absolute minimum. There is no explosion hazard with the new Carrier mechanical water seal.

A black and white photograph of a man in a suit and tie, looking down at a large, complex industrial pump. The pump has a large, ribbed, dome-shaped cover and various flanges and pipes. The man is leaning over the pump, examining it closely.

NOW! A LOWER COST ALL-

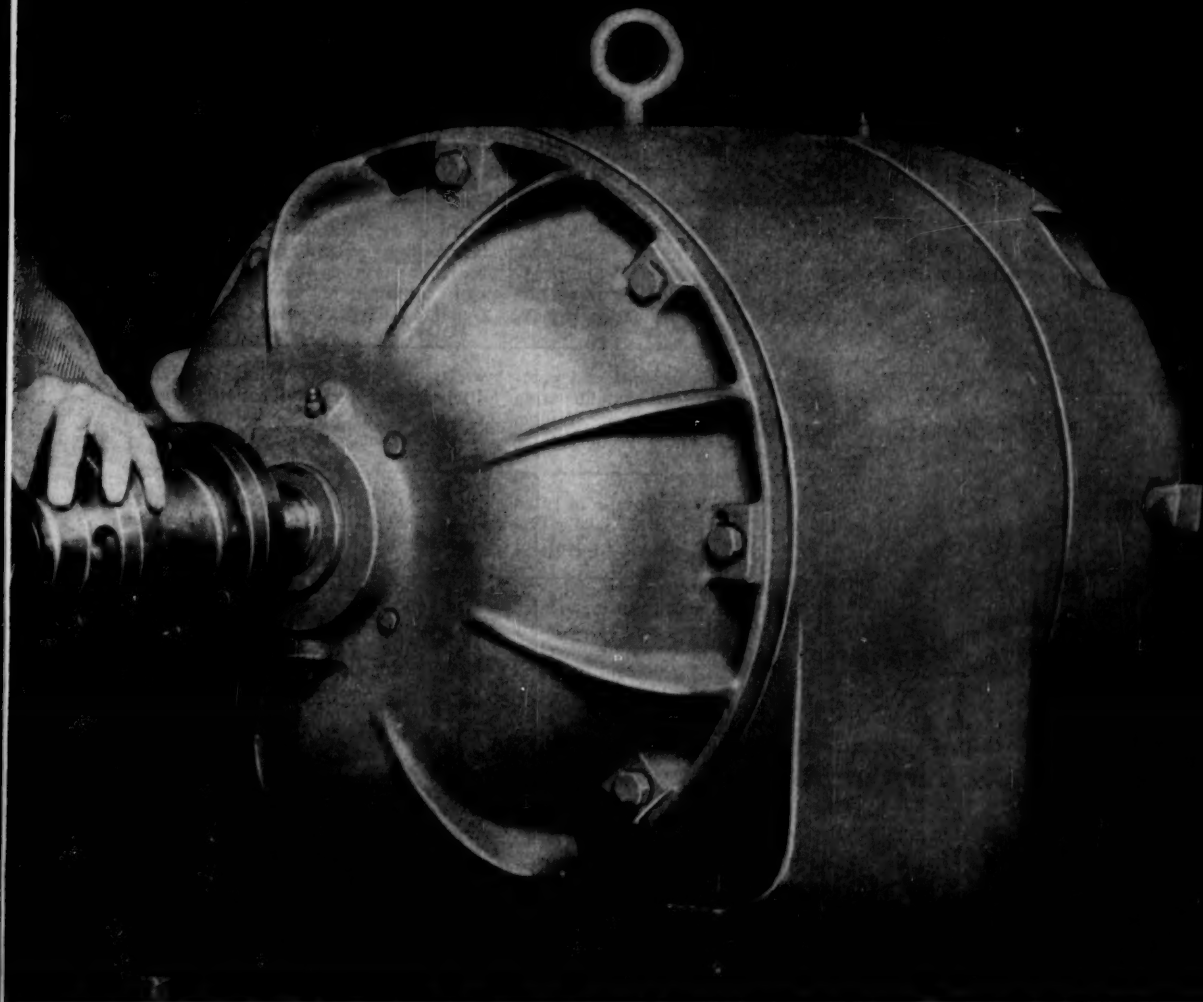


Here is the latest product of Worthington research — the new HN line of centrifugal pumps. Designed especially for process industry pumping problems, these heavy-duty pumps can meet all operating conditions up to 850 F and 600 psig.

Versatility. The HN line allows you to choose exactly the right pump. There are three models available: the HN with end suction; the HNT with top suction; and the HNC with integral seal. You have a choice of stock materials of construction — and for those severe corrosive conditions special alloys can be provided. Stuffing boxes are suitable for packing or mechanical seals in full compliance with API specifications.

The integral seal pump gives you all the advantages

Inquiry Code for This Advertisement-452-3



SERVICE PROCESS PUMP

of mechanical seal operation and features a totally enclosed seal housing for safe disposal of leakage vapors. Only one size seal is required for all pumps.

The "built-in" versatility of the HN line gives you application flexibility that takes care of changing conditions and cuts operating costs.

Interchangeability. The entire HN line is built to the same basic design, thereby simplifying maintenance procedure and offering maximum parts interchangeability. Only two bearing assemblies are required for thirteen sizes of pumps. Pumps on the same bearing assembly use identical bearings, shafts, sleeves, and packing or mechanical seals. And end or top suction casings are completely interchangeable.

For more information about the versatile new HN pump, or other units in Worthington's complete line of centrifugal pumps, get in touch with your nearest Worthington District Office. Or write to Section C-74, Worthington Corporation, Harrison, N. J. In Canada: Worthington (Canada) 1955, Ltd., Brantford, Ont.

WORTHINGTON



New Pumps, Blowers & Compressors 1957 INVENTORY

Pump, Package

Offers high efficiency for small wells. (454A)

... Certi-Line Package Pump promises 80% efficiencies for wells as small as 4 in. in diameter. Delivering more water per horsepower means top economic operation for the user. Tailored specifically for the small well the unit's largest application would be to 6 in. dia. wells.

Offered in sizes from 2 through 7½ hp., pump will produce heads up to 340 ft. at capacities from 200-7,500 gph. Package contains all necessary equipment including accessories such as foot valve and strainer, column and shaft assembly.—*Layne & Bowler Pump Co., Los Angeles 22, Calif.*

Pump, Positive

For dry solvents. (454B)

... Granco type A pump claims high efficiency in pumping dry aromatic liquids or any other petroleum product. Reason is unique "universal-joint" action incorporated in rotary,

positive displacement design. Self-lubricating nature of friction-free bearings assures that no lubricants can contaminate pumped liquid.—*Granberg Corp., Oakland 8, Calif.*

Pump, Sump

Self-contained. (454C)

... Self-contained, air-operated portable sump pump can handle wide range of jobs: remove sewage, sludge, chemical, oil or water from sumps,

wells, excavations, mines, quarries, ditches, trenches and cellars. Pump needs no priming.—*Schramm, Inc., West Chester, Pa.*

Pump, Sump

Operates on air. (454D)

... Air-operated sump pump is rated at 240 gpm. against 10-ft. head. Requiring no priming, pump is ideal for

removing liquids from tanks, sumps.—*Le Roi Div., Westinghouse Air Brake Co., Milwaukee 1, Wis.*

Pump, Triplex

For corrosive, viscous slurries. (454E)

... Basic improvements incorporated in sanitary, triplex pump solve many problems in pumping corrosive slurries as viscous as 40,000 centipoises at

medium pressures. Standard design of pump may be varied to meet individual service conditions.—*Girdler Co., Louisville 1, Ky.*

Pumps, Condensate Return

Single or duplex. (454F)

... Condensate return pumps for closed, low-pressure heating systems or process equipment, and for boiler feed condensate return are available

in single or duplex construction.—*Goulds Pumps, Inc., Seneca Falls, N. Y.*

Pumps, Motor

For first U. S. atomic electric plant. (454G)

... Four 1,600-hp., 2,300-v canned motor pumps have been installed at the nation's first full-scale atomic electric generating station at Shippingport, Pa. Each pump circulates, in

the primary loop, 18,300 gpm. of radioactive water at approximately 2,000 psi, up to 600 F. And each weighs nearly 14 tons.—*Westinghouse Electric Corp., Pittsburgh 30, Pa.*

Pumps, Plastic-Lined

Supplement lined valves, pipe, fittings. (454H)

... Introduction of saran-lined centrifugal pumps supplement saran-lined pipe, valves and fittings to make possible completely corrosion-resistant piping systems. Plastic-lined pumps

are fitted with mechanical rotary seals which eliminate high frictional heat failures and resultant leakage problems of packing glands.—*Saran Lined Pipe Co., Ferndale 20, Mich.*

Pumps, Process

Interchangeable parts. (454I)

... Through complete interchangeability of components DL and DM process pumps are expected to cut replacement part inventories up to 85%.

Another benefit is greater application versatility.—*Peerless Pump Div., Food Machinery & Chemical Corp., Los Angeles 31, Calif.*

Pumps, Rotary

Meet complex application needs. (454J)

... Five series of internal-gear rotary pumps offer unparalleled versatility in field of positive displacement pumps. All are designed with circular teeth to give rolling contact for reduced friction and high volumetric efficiency. Series A handles liquids of light to medium viscosities up to 125 psi. Series B has Underwriters'

Laboratories approval for hazardous liquids. For heavy duty applications Series C pumps handle in excess of 300 gpm. at 650 rpm. max. Series D is for highly volatile substances up to 100 gpm. For asphalt and other medium or high viscosity materials there is Series E.—*Wayne Pump Co., Fort Wayne, Ind.*

Guide to better pump selection

for

specify

**boiler feed
condensate return
hot and cold liquids
chemicals
refrigerants, etc.**

up to 200 gpm.
pressures to 900 ft.



F-M WESTCO PERIPHERAL PUMPS

High pressure at normal operating speeds. Handle widely varying heads with little change in capacity. Sizes 1 1/4" through 2 1/2".

**hot and cold liquids
liquid circulation
nonviscous liquids
boiler feed
cooling towers, etc.**

up to 900 gpm.
pressures to 525 ft.

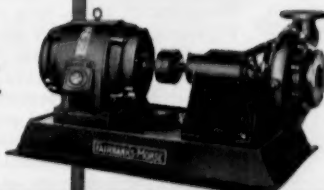


F-M BUILTTOGETHER CENTRIFUGAL PUMPS

General-purpose, close-coupled pump and motor units mount in any position—horizontal, vertical or angular. Sizes 3/4" through 5".

**sewage
slurries
paper stock
fruit
shrimp
vegetables, etc.**

up to 30,000 gpm.
pressures to 175 ft.



F-M NON-CLOG PUMPS

Unexcelled for clog-free handling of liquids with solids in suspension. Sizes 2" through 20". Vertical or horizontal. Bladeless or conventional.

**water supply
plant service
booster
circulating
air conditioning
refrigeration
chemical liquids
boiler feeds, etc.**

up to 50,000 gpm.
pressures to 700 ft.

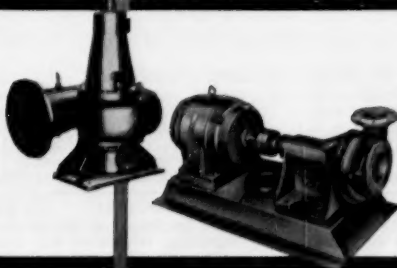


F-M SPLIT-CASE CENTRIFUGAL PUMPS

High, sustained efficiency over wide range of conditions. Low-cost maintenance. Sizes 1 1/2" through 36". Single stage or multistage.

**hot and cold liquids
chemicals
circulating liquids
nonviscous liquids
cooling towers
condenser circulation, etc.**

up to
100,000 gpm.
pressures
to 250 ft.



F-M END-SUCTION PUMPS

A wide line of rugged, precision-built pumps. Sizes 3/4" through 54". Horizontal or vertical centrifugal.

FOR LOW-COST PUMPING SPECIFY FAIRBANKS-MORSE

Need new pumps? Your Fairbanks-Morse Dealer has the world's greatest variety for you to choose from. Need help in selection? Your F-M Dealer and F-M Sales Engineer will help specify the right type, right size pump and driver for low-cost, foolproof operation. Call them today, or write Fairbanks, Morse & Co., Dept. CE-15, 600 So. Michigan Ave., Chicago 5, Illinois.



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a name worth remembering when you want the BEST

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New Pumps, Blowers & Compressors 1957 INVENTORY

Pumps, Submerged

Positive displacement type offered as package. (456A)

Pumps, Turbine

For light liquids at low suction head. (456B)

Pump Casing, Hinged

Cuts downtime. (456C)

Test Loop

Checks compressor design under simulated field conditions. (456D)

... Line of submerged rotary pumps operates on patented universal-joint principle of rotary positive displacement design. Pumps eliminate priming problems. They're furnished complete in ready-to-install package unit with discharge column and driving head integral with the pump. Models available for capacities to 300 gpm. —Granberg Corp., Oakland 8, Calif.

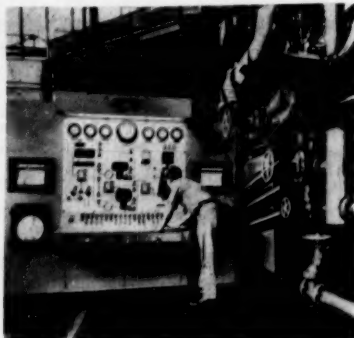
... Series of turbine, single and double stage process pumps handles liquefied petroleum gases, refrigerants and other light, non-viscous liquids. Pumps operate at low suction head requirements assuring positive, non-

... Hinged cover casing with jacking bolts has been developed to save time and effort when removing upper half

... Centrifugal compressors designed for industrial air conditioning and refrigeration are checked out by Worthington Corp. on a test loop that produces much wider test conditions than field tests can give. Within hours or a few days it answers performance questions that formerly required months. Facility is closed-circuit test loop with electronic digital computer. It's controlled automatically. Compressor performance can be determined independent of system performance. Compressor can be tested with common refrigerants. —Worthington Corp., Harrison, N. J.

pulsating discharge flow. There's no shaft leakage because built-in pressure relief keeps pressure against mechanical seal at a minimum. —New York Air Brake Co., Aurora Pump Div., Aurora, Ill.

of centrifugal pump casing to check or remove rotating element. —Goulds Pumps, Inc., Seneca Falls, N. Y.



Literature Available

PUMPS, BLOWERS & COMPRESSORS

Air Duct, Flexible.....How Wiremold flexible air duct is used for air conditioning, fume and dust exhaust and corrosive fumes is told in a 4-page circular, Form 591, now available. (456E) Wiremold Co.

Blowers.....Precision manufactured to move more gas or air with less wear than other blowers of equal size or weight, with less maintenance and power costs. Describes in Bulletin B-154. (456F) Read Standard Corp.

Blowers.....4 p. bulletin contains selection charts & other engineering information on "Standardaire" blower, a modern compressor adaptable to pressure or vacuum service. Bulletin B-154A. (456G) Read Standard Corp.

Blowers.....Folder lists and describes Hoffman blowers, exhausters, pneumatic systems, filters, flotation equipment, separators, stills, smooth-flow tubular pipe and fittings. Request copy. (456H) U. S. Hoffman Machy. Corp.

Blowers, Centrifugal.....De Laval makes single stage blowers as well as a complete line of equipment for all refinery services, including multi-stage compressors and turbines. Send for Bulletin 0604. (456I) De Laval Steam Turbine Co.

Blowers, Centrifugal.....Un-plasticized rigid polyvinyl chloride blowers for expelling corrosive air, fumes and gases are discussed in bulletin. For complete details, company gives Bulletin 102. (456J) Industrial Plastic Fabricators.

Blowers & Exhausters, Centrifugal.....Bulletin presents typical applications, general specifications and operating features of centrifugal type blowers and exhausters for air or gas. Bulletin B-7. (456K) Lamson Corp.

Blowers & Fans.....Un-plasticized rigid polyvinyl chloride blowers and fans—143 to 15,000 cfm—for exhausting corrosive air, fumes and gases. Centrifugal blowers—axial fans. Full details in bulletin. (456L) Ind. Plastic Fabricators.

Calculators, Vacuum Pump.....Stokes Vacuum Calculator contains valuable high vacuum data, simplifies calculation of pump performance and selection of pump size for specific applications. Available. (456M) F. J. Stokes Corp.

Compression Systems, Central.....Cardox 3,000-12,000 psi central compression system speeds development of pneumatic components, high-pressure processes. Further details available. (456N) Cardox Corp.

Compressors.....Describes Allis-Chalmers single and two-stage vane type compressors for shop air, gas handling, drilling and numerous other applications. Bulletin Nos. 16B8244 and 16B8126. (456O) Allis-Chalmers Mfg. Co.

Compressors.....Hofer compressors feature horizontal multistage construction with only one stuffing box; metal packing; sight bubble indicator forewarns time for packing adjustment; quiet. Catalog. (456P) Autoclave Engineers.

Blowers, Motor.....Bulletin 89 tells about blowers in two series up to 4" static pressure. Applicable to ventilating, drying and air conditioning; available in one, two and three fan assemblies. (456Q) Niagara Blower Co.

* From advertisement, this issue

**NOT ONE, BUT
TWO SLICES**
off your
operating costs



with **Kinney**[®]

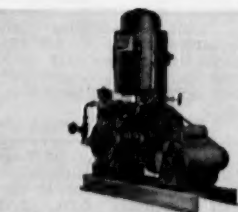
HIGH VACUUM PUMPS

You don't have to wait for KINNEY Pumps to "warm up" to their job of pumping a High Vacuum . . . pump-down starts with the first revolution. Power consumption is lower per cubic foot evacuated and time of pump-down to operating pressures is shorter. This means savings in time, and power. And—KINNEY Pumps use less horsepower holding a vacuum—even in the 1 micron range or lower. These are two important savings whether you are dehydrating, deaerating, distilling, fumigating, freeze-drying, separating, refining, purifying or employing any other of a thousand and one Vacuum processes. KINNEY Pumps slice costs and are unique in their ability to perform constantly with minimum maintenance.

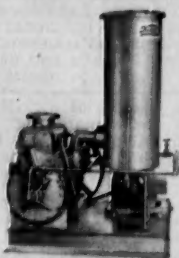
COMPLETE HIGH VACUUM SYSTEMS

KINNEY-built High Vacuum Systems range from laboratory and research units, reaching for pressures in the order of 10^{-7} mm Hg. or lower, to pilot plant and full scale custom-tailored production equipment.

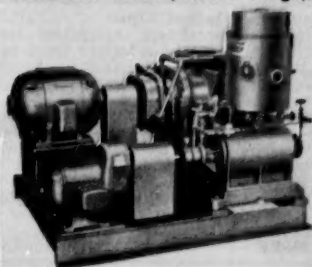
For the Metallurgist there are units for Evaporating or Sputtering, as well as large scale Degassers, Heat Treating, Sintering and Melting Furnaces. KINNEY Engineering, backed by half a century of Vacuum "know-how," offers YOU extra advantages in the perception of your Vacuum problems and the development of equipment to best solve them!



**KS-13 Single Stage, Simplex Design
KINNEY Oil Sealed Mechanical Pump**
with $\frac{1}{2}$ hp motor produces pressures to 10 microns (McLeod Gauge).



**KD-310 Single Stage, Duplex Design
Oil Sealed Mechanical Pump** with 15 hp motor provides pressures to 10 microns or better (McLeod Gauge).



**KMB-1200 KINNEY Mechanical
Booster High Vacuum Pump** with 10 and 5 hp motors produces ultimate pressures to 0.1 microns (McLeod Gauge).

SEE THE
KINNEY
EXHIBIT
AT THE
CHEMICAL
SHOW
BOOTHS 884-886
DEC. 2-6

KINNEY MFG. DIVISION
THE NEW YORK AIR BRAKE COMPANY 

3551 WASHINGTON STREET BOSTON 30 • MASS.

Please send me copy of your Bulletin No. 425 ☐. We would like to discuss equipment for _____

_____ ☐

Name _____

Company _____

Address _____

City _____ Zone _____ State _____

New Pumps, Blowers & Compressors

1957 INVENTORY

Literature Available

Compressors— Fans

- Compressors.....**The Type FMP reciprocating compressor for field pick-up service, gas boosting, air drilling and general industrial use. Company furnishes Bulletin No. F-80.
458A Cooper-Bessemer Corp.
- Compressors.....**Bulletin shows line of small, air-cooled compressors for industrial automotive, commercial and general use. Offers one- and two-stage compressors. Bulletin AC-15.
458B Gardner-Denver Co.
- Compressors.....**RX compressors have sturdy frame, compressor parts designed to run round-the-clock, easily inspected and adjusted parts. Low power consumption, better balance. Bul. HAC-40.
458C Gardner-Denver Co.
- Compressors.....**Features: completely enclosed main frame with removable, bolted cover plates; gasketed covers keep oil in—dirt out; two crankshaft counterweights for better balance. Buls. HAC-36, HAC-40.
458D Gardner-Denver Co.
- Compressors.....**For any volume, any pressure, any use, your Gardner-Denver Compressor specialist can fill your needs from firm's wide range of compressor types & sizes. Bulletins.
458E Gardner-Denver Co.
- Compressors.....**Complete line of electric-driven, steam-driven, gas-engine, and centrifugal compressors backed by many years of experience in designing and building compressors. Form 3132A.
458F Ingersoll-Rand Co.
- Compressors.....**WN-224 compressor with compact, semi-radial design is delivered as a package, completely assembled and ready to go. Capacities 2418 to 6048 cfm, horsepower 350 to 100. Bul. 179-11.
458G Joy Mfg. Co.
- Compressors.....**Nash compressors have no internal wearing parts, no valves, pistons or vanes, no internal lubrication, low maintenance cost. They save floor space, have long life. Bulletins.
458H Nash Engineering Co.
- Compressors.....**Every Norwalk compressor is test-run for 8 hours, then taken down for inspection before shipment. Complete catalog describes compressors from single to six stages.
458I Norwalk Co.
- Compressors.....**Andreas Hofer compressor has gained world-wide acceptance as the most efficient small compressor on the market. Company is the sole distributor in the U. S. Catalog.
143d Autoclave Engineers.
- Compressors.....**Company manufactures more than one thousand types and sizes of reciprocating and centrifugal compressors. Company offers "Compressors for the Process Industries", Form 3132-A.
404s Ingersoll-Rand.
- Compressors, Air.....**I & E Diesel-driven, portable, engine-compressors range in air capacity from 55 to 320 cubic feet per minute. They are air cooled and require no liquid coolant. Bulletin.
458J Air Compressors Inc.
- Compressors, Air.....**Data sheet lists construction details, specifications, and models of air compressors in the ¼-20-hp. range. Helps select the compressor for a job in virtually any industry.
458K Brunner Mfg. Co.
- Compressors, Air.....**For any air needs in the 150-4500 hp range, Clark offers an ultra modern balanced, opposed compressor to fit every application. For details, Bulletin No. 118.
458L Clark Bros. Co.
- Compressors, Air.....**44 p. catalog "Industrial Air" just released. Gives capacities, specifications and typical data for motor-driven compressors from 200 hp to 2000 hp. Bulletin M-81.
458M Cooper-Bessemer Corp.
- Compressors, Air.....**Bulletin on integral motor air compressors gives mechanical advantages, standard accessories, special accessories, performance tables and application ideas. Bulletin P-356.
458N Gast Mfg. Corp.
- Compressor, Air.....**Features offered by the Channel-Flo, 2-stage, 200 psig, motor compressor are set forth in 8-page bulletin Form 1547. Unit includes important safety and space-saving features.
458O Ingersoll-Rand.
- Compressors, Centrifugal.....**Offers a complete line of centrifugals for gas compression and refrigeration—up to 10,000 horsepower in a single unit. "Centrifugal Compressors for Industry."
458P Carrier Corp.
- Compressors, Centrifugal.....**De Laval compressors are designed and built for heavy duty continuous operation. Rugged horizontally split casings . . . individually designed impellers . . . etc. See Bulletin 0504.
458Q De Laval Steam Turbine Co.
- Compressors, Centrifugal.....**Elliott makes a complete line of single- or multi-stage centrifugal compressors, turbine or motor drive, for handling air or gases. Full details available in Bulletin P-7.
458R Elliott Co.
- Compressors, Centrifugal.....**Centrifugal compressor units, ranging from 200 to 2000 tons, are used in comfort and industrial process air conditioning. Construction and performance data.
458S Surface Combustion Corp.
- Compressors, Integral Diesel.....**New Bulletin, Form 3207, features integrally built, diesel-engine compressors for industrial plants, mines and chemical plants. Four-cycle V engine drives compressor.
458T Ingersoll-Rand.
- Compressors, Oil-Free.....**Joy has many years' experience with non-lubricated compressors; their engineers can solve problems concerning oil-free air. Several models available. Bul. 130-11.
458U Joy Mfg. Co.
- Compressors, Oil-Free.....**Joy Oil-Free Compressors use carbon piston rings that require no lubrication, with no oil in the cylinder, and no oil in the compressed air. Request a copy of Bulletin 167-11.
458V Joy Mfg. Co.
- Compressors, Oil-Free.....**Joy WG-9 oil-free compressors are equipped with carbon graphite piston rings. Need no lubrication, and compensate automatically for wear. Request Bulletin 104-11.
458W Joy Mfg. Co.
- Compressors, Piston, Carbon.....**You get pure, oil-free air, safe for textiles, plastics, foods, beverages, automation instruments and low-cost air, economical for maintenance tools. Bul. CRC-10.
458X Gardner-Denver Co.
- Compressors, Rotary.....**Fuller applies each compressor to a specific job, with resultant overall plant economy, as well as power savings. Details on rotary compressors available in Bulletin C-5A.
458Y Fuller Co.
- Eductors.....**Line of unplasticized PVC eductors used to pump and mix liquids are particularly good for corrosives. Leaflet shows recommended uses and pertinent information.
458Z Schutte & Koerting Co.
- Eliminators, Static.....**Design and operation of Ionotron radiolotope-activated static eliminator is presented in Bulletin L/A 2778. Diagrammatic sketch shows the effective zone of device.
458AA U. S. Radium Corp.
- Exhausters.....**Company makes available standard and heavy-duty commercial power exhausters, developed for handling industrial venting applications and commercial heating plants. Details and data.
458BB Quickdraft Co.
- Exhausters, Industrial.....**Heavy all-welded steel plate for strength, smooth interior surfaces for minimum friction. Interchangeable Air Wheels or Material Wheels. Details in Bulletin 3576.
458CC Buffalo Forge Co.
- Exhausters, Roof.....**Four pages of illustration, performance ratings and diagrams make up Chicago Blower's Hi-velocity industrial Roof Exhauster bulletin. Request your copy of Bulletin CH-101.
458DD Chicago Blower Corp.
- Exhausters, Rubber-Lined.....**"Buffalo" rubber-lined exhausters last from 3 to 12 times longer than ordinary metal fans handling fumes containing corrosive materials. Details in Bulletin 2424-F.
458EE Buffalo Forge Co.
- Fans.....**Bulletin 250-A describes new portable fans and mancoolers. Heavy-duty all-purpose units for spot cooling, drying or processing. Sizes from 16" to 48" with 2, 4 or 6 blades.
458FF Aerovant Fan Co.
- Fans.....**The Series 106 fans feature certified ratings, pressures to 18" w.g., volumes to 125,000 cfm., heavy construction, choice of 3 special-duty wheels, etc. Available in 16 sizes. Bulletin 5306-H.
458GG American Blower Corp.

* From advertisement, this issue

**STAINLESS STEEL
TYPE G.I.
FANS**

CORROSION-RESISTANT

**...for
handling
materials
and
hot gases
In chemical
and process Industries...**

- Type 304, 316 or 347 Stainless
- Heavy Construction
- Reversible and Rotatable

Corrosion of air handling equipment in chemical and process industries is all too frequent. The **nyb** Stainless Steel General Industrial Fan resists injurious fumes while operating at top efficiency at temperatures up to 800°F. Other protective surfaces available for mild, low temperature conditions include paints, coatings such as resins and phenolics, and complete vulcanized rubber lining that cannot bubble, peel or tear away.



Send today for bulletin B21,
and indicate particular condi-
tions or problems present.

nyb

THE NEW YORK BLOWER COMPANY

SALES OFFICES: 3159 SOUTH SHIELDS AVENUE • CHICAGO 16

New Pumps, Blowers & Compressors 1957 INVENTORY

Literature Available

Fans—

Pump, Rotary-Vane Air

Fans.....American Blower Ventura Fans offer you top performance and economical ventilation. Bulletins cover product information, Bulletin 6514 for Model K and Bulletin 6414 for Model G Fans.
460A American Blower Corp.

Fans.....Type "FG" offers excellent chemical resistance to a wide variety of acids, salts, gases, organic materials and other corrosives. Suitable for temperature application to 225° F. Bul. FI-511.
460B Buffalo Forge Co.

Fans.....Company offers full details on Type BL fans for industrial air-moving, featuring long life, full rated delivery on the job, quiet operation and easy installation. Bulletin F-102.
460C Buffalo Forge Co.

Fans.....Quiet and high in efficiency; stable performance from zero pressure to shutoff; non-over-loading regardless of system pressure. BL letin F-101 and BLH Bulletin F-200.
460D Buffalo Forge Co.

Fans.....Mechanical efficiency above 78% over a broad range—high volume, high pressure characteristics, also high resistance to abrasion. Type CR Fans discussed in Bulletin FD-205.
460E Buffalo Forge Co.

Fans....."Buffalo" Type BL Limit-Load Ventilating Fans, Axial Flow Fans & Heavy Duty Propeller Fans make favorable air conditions in plants. Bulletins F-100, 3533-EP & FM-1234.
460F Buffalo Forge Co.

Fans.....Brochure describes Chicago Blowers Axial Airfoil fans. Pictures eight fans with dimensional charts, performance tables, certified ratings and operational descriptions. Bul. AA-102.
460G Chicago Blower Corp.

Fans.....Rubber-Lined Clarage's heavy-duty construction, plus the advantage of special coatings, add up to longer service life. Exhausting corrosive fumes are no problem. Bulletin 702-A.
460H Clarage Fan Co.

Fans.....Marley multi-blade cast fans are rugged and durable. No tip-sag or service flutter. Design eliminates weld and rivet failures, skin cracks and imperfect laminations. Bulletin FH356.
460I Marley Co.

Fans.....Axiflo Fan handles air, fume and vapor jobs efficiently, inexpensively, and with a minimum of maintenance. Sturdy, practical fan handles more air for less horsepower. Catalog 1110.
460J Westinghouse Elec. Corp.

Fans.....Type "G" fans are statically and dynamically balanced, designed principally for dust control applications. Free, data-filled Bulletin 471 is available to you on request. Write now.
125D *Day Co.

Fans.....Stainless steel general industrial fans are corrosion-resistant and designed for handling materials and hot gases in chemical and process industries. Request Bulletin 521.
450 *New York Blower Co.

Fans, Air.....24-page Air Engineering Data File, Bulletin E-57, covers engineering and test facilities for propeller fans. Bulletin also covers specifications, construction, maintenance and installation.
460K Aerovent Fan Co.

Fans, Axial Flow.....Series of aerodynamically designed axial flow fans feature wider blades which offer higher pressure characteristics with less noise. Information on request.
460L Detroit Blower Corp.

Fans, Centrifugal.....40 p. booklet features listing of quiet operating, large capacity, slow speed centrifugal fans. Presents detailed performance charts. Details in Bulletin C-103, Supplement No. 1.
460M Chicago Blower Corp.

Fans, Centrifugal.....Company offers a complete line of centrifugal fans with quiet, efficient Air-foil Blading for all-purpose applications; up to 700,000 CFM. Series 8000, Catalog 1121.
460N Westinghouse Electric Corp.

Fans, Centrifugal.....Sturtevant Division announces line of centrifugal fans with Airfoil blading. Sixteen fan models with wheel diameters ranging from 27 to 108 inches in diameter. Details.
460O Westinghouse Elec. Corp.

Fans, Cooling Tower.....Revised catalog, Bulletin A-111B, describes line of adjustable-pitch cooling tower and heat exchanger fans and includes specifications and performance data.
460P Hartzell Propeller Fan Co.

Fans, Corrosion-Resistant.....How a new line of resin-bonded fiber glass fans handles a wide variety of corrosive applications up to 225° F. is described in manufacturer's new bulletin FI-511.
460Q Buffalo Forge Co.

Fans, Exhaust.....High air delivery per horsepower required. Statically and dynamically balanced; designed exclusively for dust control applications. Company makes complete details available in Bul. 471.
460R Day Co.

Fans, Exhaust.....Exhaust Fumes from Corrosive Chemicals deals with the extensive and costly problems of corrosive fumes and atmospheres. Offers tips on Hell-designed air-moving equipment.
460R Hell Process Equip. Co.

Fans, Induced Draft.....Bulletin S1-102 describes induced draft fans from 5 to 214 hp for use with boilers. Features: elimination of tall stacks, minimum maintenance, and ease of installation.
460T Chicago Blower Corp.

Fans, Industrial.....Stainless Steel General Industrial Fan resists injurious fumes while operating at top efficiency at temperatures up to 800°F. Details made available in Bulletin No. 521.
460U New York Blower Co.

Fans, Industrial.....Photographs of many different types of heavy duty industrial fans both ready for service and installed are included in Bulletin 502. Index of manufacturer's models also included.
460V Robinson Ventilating Co.

Fans, Propeller.....Fan sizes, revised air deliveries, specifications, performance data and dimensional drawings on the entire Hartzell line of fans are contained in revised catalog, Bulletin A-109C.
460W Hartzell Propeller Fan Co.

Fans, Propeller.....Catalog contains fan sizes not shown in previous edition as well as revised air deliveries, specifications, performance data and dimensional drawings on line. Bulletin A-109B.
460X Hartzell Propeller Fan Co.

Fans, Propeller, Package.....Compact, easy to install packages for economical ventilation of a single room or a whole building. Husky, die-stamped blades and frame. Bulletins FM 1234 and FM 2345.
460Y Buffalo Forge Co.

Intensifiers & Pumps, High Pressure.....Bulletin covers Harwood laboratory and industrial high pressure intensifiers and pumps, 5000 to 350,000 psi. Includes various models with specifications.
460Z Harwood Engrg. Co.

Lubricators.....Technical reference describes automatic lubricators featuring a constant pressure rotary pump. Discusses capacity, characteristics, rotary pump unit, applications. Reference 55C.
460AA Bijur Lubricating Corp.

Pump, Controlled Volume.....Complete specifications and dimensions for a new controlled volume barrel pump are offered in new Bulletin 1256. Pump meters and pumps toxic or corrosive chemicals from drums.
460BB Milton Roy Co.

Pump, Duplex.....Catalog now available gives details on new duplex flex-i-liner pumps which double the capacity of largest previous unit. Fluid contacts only outer surface of flexible liner, has no seals.
460CC Vanton Pump & Equip. Corp.

Pump, Lab Type.....Leaflet tells about model T-8 Sigmamotor pump for capacities from 0.1 to 250 cc./min. Steel fingers manipulate tubing to pump liquid without contacting pump mechanism.
460DD Sigmamotor, Inc.

Pump, Laboratory Metering.....Technical guide No. 10 explains how the Kinetic Clamp applies pressure externally on a flexible tube to cause liquid within the tube to flow at a controlled rate.
460EE Cornell Associates.

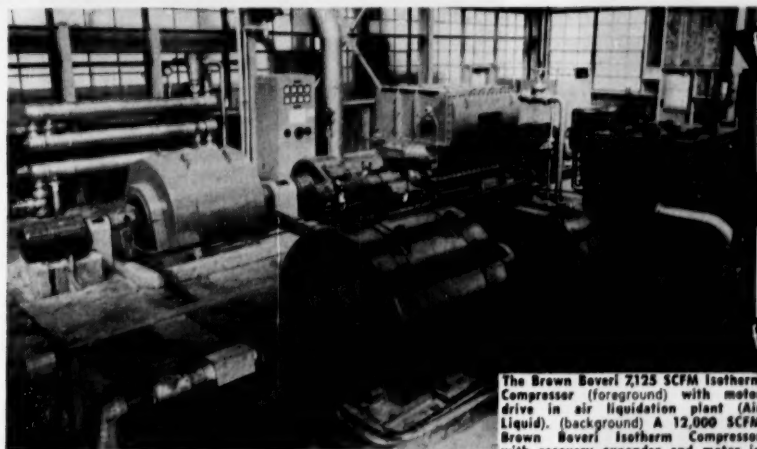
Pump, Rotary-Vane Air.....Bulletin VP-557-13 describes the model 4565 rotary-vane air pump which delivers 45 cfm. As a compressor it's used to atomize fuel oil on industrial burners.
460FF Gast Mfg. Corp.

Literature

Continued on p. 466

* From advertisement, this issue

If you need **LARGE VOLUME*** **MEDIUM PRESSURE*** *Oil-Free Air -*



The Brown Boveri 2125 SCFM Isotherm Compressor (foreground) with motor drive in air liquidation plant (Air Liquid). (background) A 12,000 SCFM Brown Boveri Isotherm Compressor with recovery expander and motor in Nitric Acid plant (C & I).

for SUPERCHARGING
of a
CHEMICAL PROCESS

for OXYGEN
PRODUCTION

for OTHER
CHEMICAL
PROCESSES

you need a **BROWN BOVERI** **ISOTHERM COMPRESSOR**

WHERE large volumes of oil-free air (5,000 SCFM and up, 100-300 PSIA)* are required, there is no better equipment available today to achieve "close to isotherm" type of compression, assuring the lowest possible kW input, than a Brown Boveri Isotherm Compressor.

If "tail" gas is available, the high efficiency, reaction type Brown Boveri expander can be applied in the cycle with the Isotherm Compressor to improve further the economy of the process. As drive for the compressor a synchronous, induction or other type of motor, or a steam- or gas-turbine can be used.

Over half a century's background in the manufacture of this Brown Boveri equipment (including control and all accessories) is your positive assurance of the ultimate in the reliability of this "packaged" unit. Write for more information, *today!*

BROWN BOVERI CORPORATION

NEW YORK 6, N. Y. • 19 RECTOR STREET

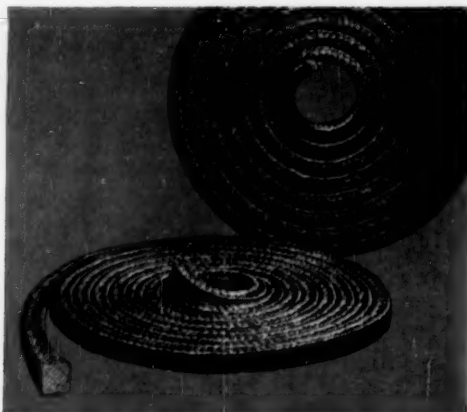
Atlanta, Ga. • Birmingham, Ala. • Boston, Mass. • Buffalo, N. Y. • Chicago, Ill. • Cleveland, O. • Dallas, Tex. • Denver, Colo. • Detroit, Mich.
Hamilton, O. • Jacksonville, Fla. • Kansas City, Mo. • Knoxville, Tenn. • Miami, Fla. • Minneapolis, Minn. • New Orleans, La. • New York, N. Y.
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How chemical engineers 4 Garlock



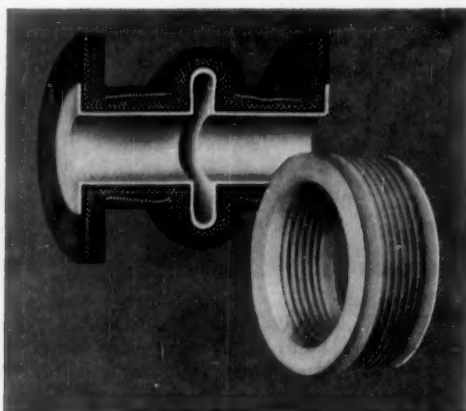
"... the new Teflon® Fiber Packings (especially those in the LATTICE BRAID** form) give excellent life on pumps handling difficult chemicals. In the first place, they are chemically inert and tough. But beyond that, Garlock has made an extremely resilient, flexible product in this Teflon LATTICE BRAID. Just the thing for sealing shafts rotating at high speeds. You get cooler pump operation as well as good sealing characteristics."



Garlock LATTICE BRAID Packing made from pure Teflon yarn. Write for Catalog AD-131



"... costly chemical resistant piping usually has poor impact resistance. Therefore Teflon expansion joints should be used to absorb shock, vibration, expansion, and contraction. For low pressure systems handling foods, acids, caustics, etc., Garlock makes an all-Teflon Expansion Joint which is ideal. For systems under higher pressures the reinforced rubber expansion joint with Teflon liner is more suitable."



Garlock Teflon and Teflon-lined Expansion Joints. Write for Catalog AD-137

GARLOCK

*Packings, Gaskets, Oil Seals, Mechanical Seals,
Rubber Expansion Joints, Fluorocarbon Products*

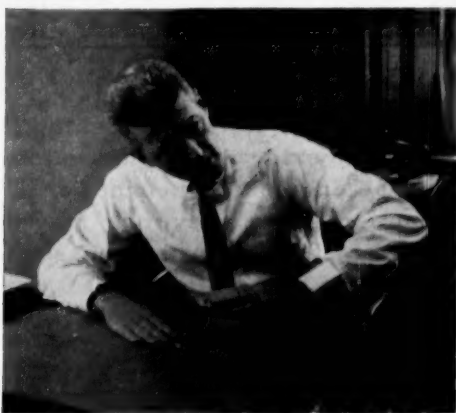
speak about these products



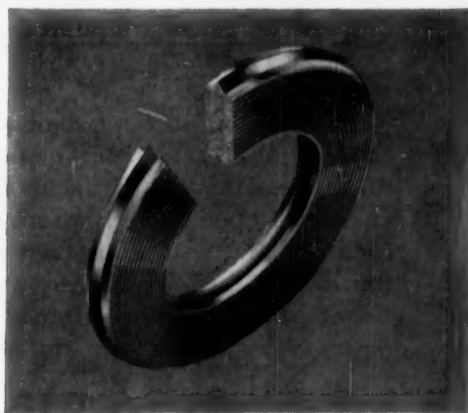
"... of course, the ultimate in sealing today is the mechanical seal. In many applications Garlock's CHEMISEALS** operate indefinitely. Difficult sealing jobs, however, are the real test of a mechanical seal—and CHEMISEALS have provided a long and still growing list of successful applications against strong acids, alcohol, alkalies, hydrocarbons, etc. By making use of Teflon, Garlock has developed a mechanical seal with the greatest immunity to corrosion and contamination."



Garlock CHEMISEAL Mechanical Seal. Write for Catalog MS-1155



"... with Garlock Spiral Wound GUARDIAN** Gaskets you can vary the compressibility to meet different pressure requirements and established bolt loads. This is done by increasing or decreasing the number of layers, or windings, of stainless steel and Teflon (or asbestos). Thus, a safe seal is obtained, even at highest pressures and under lighter bolt loads."



Garlock Spiral Wound Guardian Gasket. Write for Catalog AD-104.

These products of Teflon are another important part of the Garlock 2,000 . . . two thousand styles of Packings, Gaskets, and Seals for every need. The only complete line. It's one reason you get unbiased recommendations from your Garlock representative. Call him or write for literature.



**THE GARLOCK PACKING COMPANY,
PALMYRA, N.Y.**

For Prompt Service contact one of our 30 sales offices and warehouses throughout the U.S. and Canada.

*DuPont Company Trademark
**Registered Trademark

Dear Subscriber:

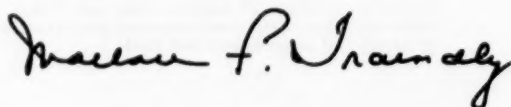
As a reader of this magazine, you should be interested in McGraw-Hill's decision to discontinue publication of *Petroleum Processing*, which for many years has served the petroleum refining and petrochemical fields.

This decision, influenced to some extent by the fact that *Chemical Engineering* has always served a considerable audience in these industries, provides *Chemical Engineering* with a challenging opportunity to expand its editorial services in these areas. Now, with a larger editorial staff, *Chemical Engineering* will devote even greater attention to basic technology in the petroleum field.

In addition, today's accelerating tempo of technological advances in chemical engineering also demands a corresponding speed-up in the communication of engineering ideas and techniques. To meet these demands for more timely technical information, and at the same time continue to serve the interests of the "whole man", *Chemical Engineering* will increase its publishing frequency to 26 issues a year, effective January 1, 1958.

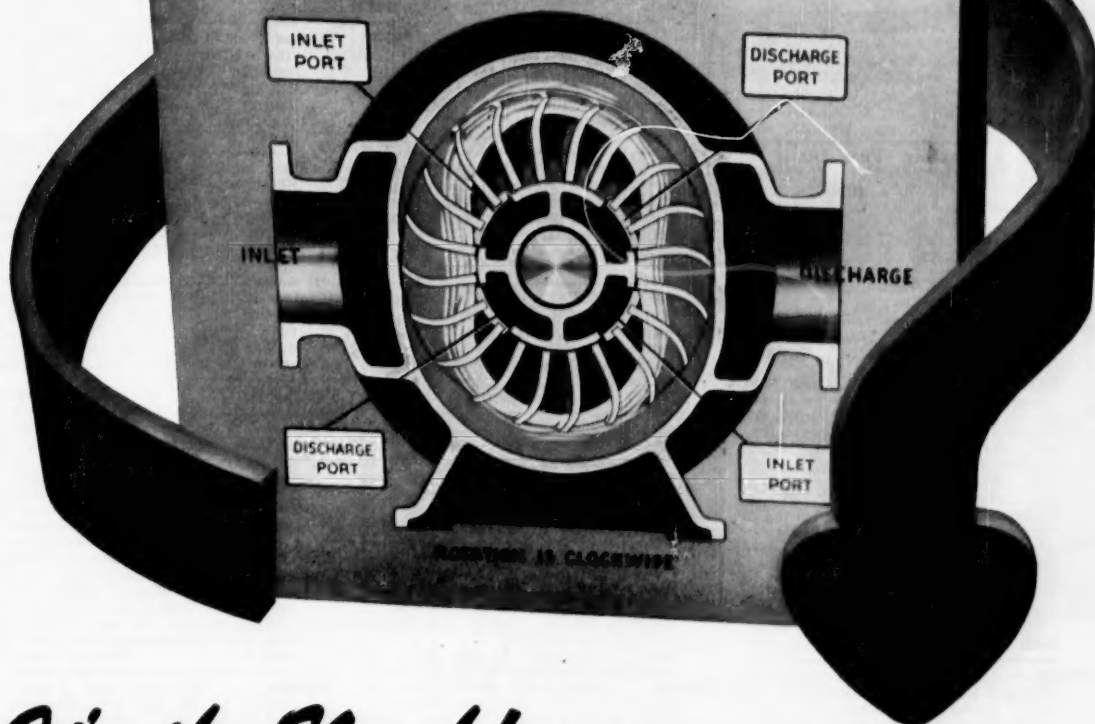
There will be no fundamental change, however, in our publishing philosophy or editorial content. *Chemical Engineering* will continue to meet the specialized informational needs of the engineer concerned with chemical operations, whatever his function and wherever he may be located. But with 26 issues a year-- and a 28 per cent increase in editorial content--we will be able to implement this philosophy to a greater degree through more timely reporting of advances and trends in both processing technology and engineering techniques.

We are convinced that through these moves, you--our reader--will find increasing benefits from the pages of *Chemical Engineering*.



Wallace F. Traendly
Publisher

This is Why the Nash is the Most Simple Compressor



It's the Nash!

There are no mechanical complications in a Nash Compressor. A single moving element, a round rotor, with shrouded blades, forming a series of buckets, revolves freely in an elliptical casing containing any low viscosity liquid. This liquid, carried with the rotor, follows the elliptical contour of the casing.

The moving liquid therefore recedes from the rotor buckets at the wide part of the ellipse, permitting the buckets to fill with gas from the stationary Inlet Ports. As the casing narrows, the liquid is forced back into the rotor buckets, compressing the gas, and delivering it through the fixed Outlet Ports.

Nash Compressors produce 75 lbs pressure in a single stage, with capacities to 6 million cu. ft. per day in a single structure. Since compression is secured by an entirely different principle, gas pumping problems difficult with ordinary pumps are often handled easily in a Nash.

Nash simplicity means low maintenance cost, with original pump performance constant over long periods. Data on these pumps sent immediately on request.

No internal wearing parts.

No valves, pistons, or vanes.

No internal lubrication.

Low maintenance cost.

Saves floor space.

Desired delivery temperature automatically maintained.

Slugs of liquid entering pump will do no harm.

75 pounds in a single stage.

NASH ENGINEERING COMPANY
313 WILSON, SO. NORWALK, CONN.

New Pumps, Blowers & Compressors

Literature Available

Pump, Turbine—
Pumps, Acid

Pump, Turbine.....Expanded line of Miniturb turbine pumps is described in 4-page Bulletin 4701-D. Sizes permit greater selection and wider application for this vertical turbine pump.
466A Deming Co.

Pumping & Heating, Fuel Oil.....Gives information on fuel oil pumping & heating units to prepare, for combustion, all grades of fuel oil including No. 7 or Bunker "C" oil & residums. Bulletin 40.
466B National Airoil Burner Co.

Pumping Units, Vacuum.....82-V vacuum pumping unit "with dry sight feed" will end liquid sight feed problems. Can be installed on any Manzel lubricator. Catalog available.
466C Manzel Div.

Pumps.....Available in aluminum, bronze, stainless steel, Hastelloy and titanium. Aldrich fluid ends handle all types of liquids—nitric acid, caustic solutions, fatty acids, etc. Details in Data Sheet 100.
466D Aldrich Pump Co.

Pumps.....Company manufactures pumps for every liquids handling job in industry. Many models of Aurora turbine-type pumps and Aurora centrifugal pumps are described in Condensed Catalog M-55.
466E Aurora Pump Div.

Pumps.....Rubber permanently bonded to the impeller and all liquid passages prevents the corrosion that could quickly put an ordinary metal pump out of action. Details in Bulletin 982.
466F Buffalo Pumps.

Pumps.....Company offers bulletin covering Dexter-Conde "Dri-Air" pump & Dexter-Conde air filters. Includes construction details, specifications, descriptive data, illustrations, applications, etc.
466G Dexter Folder Co.

Pumps.....Bulletin details the distinctive characteristics, materials of construction, types, sizes and capacities of the six major types of Dorr-Oliver pumps for the chemical process industry. Bulletin 5000.
466H Dorr-Oliver.

Pumps.....Triplex pumps for a wide variety of operations where medium pressures are involved... for liquids and materials of viscosities as high as 40,000 centipoises. Request Bulletin V-241.
466I Girdler Co.

Pumps.....Company offers two types of pumps for volume pumping and for great pressure, single-stage and double-stage. Bulletins 721.6 and 720.4 for single-stage, Bulletin 722.6 for double-stage pumps.
466J Goulds Pumps.

Pumps.....A 16 p. catalog features Hills-McCanna Diaphragm Valves & Metering & Proportioning Pumps. Includes specifications, capacity tables, schematic diagrams, etc. Catalog 9G-56.
466K Hills-McCanna Co.

Pumps.....Company offers Bulletin 7248-A on their single-stage, horizontally-split centrifugal pumps and Bulletin 7226 on their fully approved fire pumps with standard fire fittings.
466L Ingersoll-Rand.

Pumps.....A well illustrated 4 p. flyer Form 7444 describes a line of circulating and coolant pumps for sidewall or immersion mounting. They have no stuffing boxes, no pump bearings or couplings.
466M Ingersoll-Rand.

Pumps.....Ingersoll-Rand motor-pumps have well-balanced impellers and precision machined parts help provide peak performance and smooth operation on every job. Request latest Motor pump Catalog.
466N Ingersoll-Rand.

Pumps.....Bulletin L51A gives data on pumping difficult materials, information on the present liquid handling picture and full particulars on Kinney pumps. Request your copy now.
466O Kinney Mfg. Div.

Pumps.....Company offers engineered, dependable performance complete from water location to year after year of trouble-free pumping. Your pump is created for your job. Bulletin No. 100.
466P Layne & Bowler.

Pumps.....Information on Triplex Hi-Pressure Pumps in Bulletin P-55. Details on Hincley Rotary Positive Displacement Pumps in Bulletin HR-57. Gaulin HX Pumps in Bulletin HPX-55.
466Q Manton-Gaulin Mfg. Co.

Pumps.....Are built for abusive applications only—abrasion, corrosion, heat, heavily loaded liquids, trash. Complete range of sizes—horizontal and vertical shafts. Full details in Catalog No. 5206.
466R Nagle Pumps.

Pumps.....Bulletin describes Nuclear's "Canned" combined motor and pump, which requires no seal, stuffing box, or lubrication. Specifications, dimensions, & applications. Bulletin 1001.
466S Nuclear Pump.

Pumps.....Type SVC process pump discussed in bulletin is water cooled for operation above 800 F. with capacity range of 15 to 3,000 gpm. at 600 psig. and differential head of 700 ft. Request Bul. 137.
466T Pacific Pumps, Inc.

Pumps.....Modern Type PR pump design for temperatures up to 850° F. and Modern Type PRS mechanically sealed pump design for temperatures up to 250° F. Bul. B-1605.
466U Peerless Pump Div.

Pumps.....Handle most anything that can pass through a pipe, from free-flowing liquids to non-pourable pastes—materials containing relatively large particles or abrasives. Details in Bulletin 30-CE.
466V Robbins & Myers.

Pumps....."How to Solve Pumping Problems" presents a general explanation of rotary gear pumps, factors of pumping problems, sample problems and technical data. Full details in Form 3060.
466W Geo. D. Roper Corp.

Pumps.....Bulletin on sanitary liquid end controlled volume pumps. Describes the construction of the sanitary liquid end and the ease with which it is disassembled for cleaning. Bulletin 1056.
466X Milton Roy Co.

Pumps.....Pump liquids, gases, slurries without corrosion or contamination. Wavelike motion of steel fingers forces material through tubing. Company offers catalog giving details.
466Y Sigmamotor Inc.

Pumps.....Practical Guide to Pump Selection—illustrations & descriptions with capacities & adaptability of pumps contained in compilation of facts to help avoid costly misapplication. Bulletin S-146.
466Z Taber Pump Co.

Pumps.....Information on the number of rings, depth of box, type of packing, chemical & physical properties of fluid being pumped, speed of shaft & other facts, in Pump Bulletin S-147.
466AA Taber Pump Co.

Pumps.....Taber pumps are built for handling chemical solutions, efficiently and economically... in the processing industries. Details on horizontal pumps in Bulletin C-355, and vertical pumps in Bul. V-837.
466BB Taber Pump Co.

Pumps.....If you have a problem where metering, blending or other accurate pumping of liquids is concerned let Viking help solve it. Use Viking pumps for accurate pumping. For information, Bulletin 578C.
466CC Viking Pump Co.

Pumps.....Warren can build the pump to do the job, 50 SSU or 500,000,000 SSU. Offers these types of pumps—reciprocating, centrifugal and gear-screw. Company gives details in bulletins.
466DD Warren Pumps.

Pumps.....A complete line of centrifugals, in polished 316 stainless and unpolished finish. Capacities from 2000 through 210,000 lb. hr.; ¼ h.p. to 30 h.p. Bulletin G-524.
423a *Cherry-Burrell Corp.

Pumps.....A 64-page catalog covers the complete Waukesha line of positive-displacement sanitary and corrosion-resistant pumps. Instructions for estimating requirements, operating and servicing.
466EE Waukesha Foundry Co.

Pumps.....Bulletin 103-D describes electric cellar drainers, both standard and submersible types. Bulletins 109 and 109-B tell about self-priming contractor pumps, portable and belt models.
472d *Aurora Pump Div.

Pumps.....Bulletins 121-A and 121MV discuss several types of non-clog pumps. Bulletin 119PKG describes Centri-Pac close-coupled pumps. Bulletin 120-G tells of Type GME pump for sprinkler irrigation.
472f *Aurora Pump Div.

Pumps, Acid.....Mighty midjet for pumping acids. Jabsco neoprene-impeller pump made of Ace hard rubber outlasts, out-pumps anything in its pressure, size and price class. Full details in Bulletin 97-A.
466FF American Hard Rubber Co.

* From advertisement, this issue

1957 INVENTORY

Pumps, Acid. Bulletin describes the design features, corrosion-resistant materials of construction, applications, sizes and capacities of the Olivite acid handling pump. Full details in Bulletin No. 5004.

467A Dorr-Oliver.

Pumps, Acid. On most difficult pumping jobs dependable highly efficient pumps deliver continuous, trouble-free performance on round-the-clock schedules wherever they are installed. Details.

467B A. R. Wilfley & Sons.

Pumps, Acid & Chemical. Pumps to handle every acid or chemical fluid used in industry. Offers help with difficult chemical pumping problems. For details, Bulletin 203-7.

467C Lawrence Pumps.

Pump, Airlift. Airopump air lift pump described in company's Bulletin 2257548 is a unit designed specifically for low lift applications peculiar to sewage and industrial waste treatment processes.

467D Walker Process Equipment.

Pumps, Boiler Feed. Type RR two-stage and four-stage pumps have efficient, balanced impellers, over-size bearings and shafts, rugged casings with simply formed water passages. See Bulletin 980.

467E Buffalo Pumps.

Pumps & Boosters. Catalog 1957 on rotary positive air and vacuum pumps, gas boosters and air motors details construction, dimensions, capacities, performance curves and installations.

467F Leiman Bros.

Pumps, Canned. Bulletin entitled "The Corley Magnafloe, Simplest Pump You Ever Saw" lists the advantages of fractional horsepower canned pumps as compared with conventional centrifugal pumps.

467G Corley Co.

Pumps, Centrifugal. Pumps offer a choice between Hydroseal's added protective flow of sealing water, and Centriseal's ability to deliver abrasive or corrosive fluids undiluted. Request your Brochure 956.

467H Allen-Sherman-Hoff Co.

Pumps, Centrifugal. Line includes process and solids handling pumps as well as general purpose types. Offer improved product quality, streamlined production increased profits. Details.

467I Allis-Chalmers Mfg. Co.

Pumps, Centrifugal. Line of off-the-shelf, high-speed centrifugal pumps are described in 6-page bulletin P-3b and insert P-3c. Pumps in a range of materials to combat corrosion, erosion, wear.

467J Ampco Metal.

Pumps, Centrifugal. Catalog sheet describes the Bart "Flex-Seal" Centrifugal Pumps. A special "rate of flow" chart clearly indicates the capacities & flow-rates of the models available.

467K Barta Labs.

Pumps, Centrifugal. The Series E Chempump is a low-cost, compact canned motor pump less than 8 inches long. Details on performance, materials of construction, and dimensions in Bul. 1000.

467L Chempump Corp.

Conqueror of the FUTURE...



MORRIS meets the CHALLENGE of INDUSTRY'S NEW FRONTIERS

No Matter What Your Present or Future Heavy Pumping Problems Are . . . Morris Can Satisfy You NOW!

The new Morris Type RX Slurry Pump is specifically engineered to handle the viscosities, densities and special characteristics of the slurries and sludges developing from industry's ever-advancing products. It is engineering attuned to the future . . . designed to meet the demands of a towering tomorrow.

Rugged, Dependable, Trouble-Free; Operates With Minimum Attention . . . Cuts Maintenance Costs!

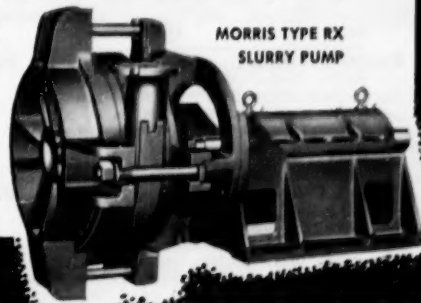
The new Morris RX is designed for performance perfection under all conditions, including heavy, coarse, fine slurries, dispersions and sludges. Operates at low speeds; quickly dismantled for inspection, avoiding lengthy lay-up time.

MORRIS MACHINE WORKS

Baldwinsville, N. Y. Sales Offices in Principal Cities

FREE SERVICE: Morris engineers will gladly recommend the custom-made pump best suited to your needs. Send necessary data today.

MORRIS
CENTRIFUGAL
PUMPS



MORRIS TYPE RX
SLURRY PUMP

New Pumps, Blowers & Compressors

1957 INVENTORY

Literature Available

Pumps, Centrifugal—
Pumps, Close-Coupled Centrifugal

- Pumps, Centrifugal**.....Standard, single stage, end suction, centrifugal process pumps. Series 10, 20 and 30 for industrial, refinery and general service are described in Circular No. 184B.
468A Dean Bros. Pumps.
- Pumps, Centrifugal**.....Optional features of Fig. 4011 End Suction Centrifugal Pump makes it readily adaptable for handling a variety of liquids, including corrosive ones. Bul. 4011-A.
468B Deming Co.
- Pumps, Centrifugal**.....Six standard models and many special models of Eastern centrifugal pumps are available in cast iron, bronze, stainless steel and other metals. Request Bul. 110A with data.
468C Eastern Industries Inc.
- Pumps, Centrifugal**.....The Eastern D-11 is the smallest, close-coupled, single-stage centrifugal pump with an induction type motor. Specifications on Eastern centrifugal pumps in Bul. 120-B.
468D Eastern Industries.
- Pumps, Centrifugal**.....Standard Impervite pump models are furnished up to 200 gpm. 100 ft. head, and specials are available in the range of 1000 gpm. Company gives information upon request.
468E Falls Industries.
- Pumps, Centrifugal**.....Illustrated reference describes line of SSV centrifugal pumps. Includes details of construction of the various sizes available, operating advantages for users, etc. Bulletin No. 107.
468F Frederick Iron & Steel.
- Pumps, Centrifugal**.....Gardner-Denver BY Pumps stay efficient even when volume on head fluctuates. Designed to deliver peak performance over broader ranges of service conditions. Bulletin A-8.
468G Gardner-Denver Co.
- Pumps, Centrifugal**.....Features, performance data and pump specifications of Goulds Fig. 3655 line containing 20 sizes of pumps, with capacities up to 2000 gpm and heads to 400 ft. Bul. 710.1.
468H Goulds Pumps.
- Pumps, Centrifugal**.....Complete line of class CRV cradle-mounted centrifugal pumps, capacities from 5 to 2800 gallons per minute, pressures of 10 to 525 feet total head. Form 7223-B.
468I Ingersoll-Rand.
- Pumps, Centrifugal**.....New 16 p. bulletin 702-C features six basic pumps in capacities from 100 to 3500 gpm, pressures to 450 psi, heads to 1100 ft. and temperatures to 300°F.
468J Ingersoll-Rand.
- Pumps, Centrifugal**.....New type SZ corrosion resistant single-stage non-priming centrifugal pump able to handle large quantities of air or gases mixed with the liquid. Request Bulletin D-3.
468K LaBour Co.
- Pumps, Centrifugal**.....Morris pump operates with minimum attention... lowers maintenance costs... can be quickly dismantled for inspection... avoids lengthy lay-up time. Full details in Bulletin 185.
468L Morris Machine Works.
- Pumps, Centrifugal**.....Impervious graphite pumps feature mechanical seal with enclosed coolant, SN armored connections, interchangeable parts, wide capacity range. Catalog Section S-7250.
468M National Carbon Co.
- Pumps, Centrifugal**.....Details on company's modern units are contained in Tri-Clover Sanitary Pump Catalog 253. Provide greatest degree of corrosion-resistance and sanitation.
468N Tri-Clover Div.
- Pumps, Centrifugal**.....Several bulletins cover Warren centrifugal pumps. They are: Bulletin 225, Bulletin 227, Bulletin 236, Bulletin 240, Bulletin 241, Bulletin 246, Bulletin 248. All revised.
468O Warren Pumps Inc.
- Pumps, Centrifugal**.....From impeller to shaft seal, Weinman pumps are built better. The built-in quality adds up to cost-saving, pumping efficiency for every job. Request product Bulletin.
468P Weinman Pump Mfg. Co.
- Pumps, Centrifugal**.....Choice of mechanical seals—or packing—with Standard End Suction Centrifugal pumps. Easily convert from one to the other using standard stock parts. Bulletin W-300-B4.
468Q Worthington Corp.
- Pumps, Centrifugal**.....Monobloc centrifugal pumps offer a wide range of sizes to fit every pumping system. Feature oversize ball bearings for long trouble-free lift. Bulletin W-306-B3D.
468R Worthington Corp.
- Pumps, Centrifugal**.....Vertical wet pit centrifugal pumps save floor space, require no priming—no costly liquid leaks as stuffing boxes are not under liquid pressure. Full details available in catalog.
468S Yeomans.
- Pumps, Centrifugal**.....Company offers catalog and performance curves on Flex-Seal centrifugal pumps, specifically designed to handle corrosive and abrasive fluids. They are safe and efficient.
468T *Bart Mfg. Corp.
- Pumps, Centrifugal**.....Bulletin 105-B describes double suction centrifugal pumps, Bulletin 106-B tells of two stage pumps, Bulletin 107 of single stage pumps and Bulletin 107-GGD of vertical pumps.
472e *Aurora Pump Div.
- Pumps, Chemical**.....Heavy duty chemical pumps designed for long service life with minimum maintenance are discussed in Bulletin P-9a. Instructions in bulletin assure best service.
468U Durlon Co.
- Pumps, Chemical**.....Goulds Fig. 3715 chemical pump protect against four types of corrosion, galvanic, uniform, intergranular and pitting. Comes in 9 sizes, many metals. Request Bulletin 720.4.
468U Goulds Pumps Inc.
- Pumps, Chemical**.....Bulletin 721.6 describes Gould Fig. 3405 corrosion-resistant chemical pump. Comes in 19 sizes, with capacity to 6400 GPM, head to 425 ft. Single stage, double suction.
468V Goulds Pumps Inc.
- Pumps, Chemical**.....Bulletin 722.6 describes Gould Fig. 3405 chemical pump. Comes in eight sizes, capacity to 1200 GPM, head to 1000 ft. Two-stage, opposed impellers, corrosion-resistant.
468W Goulds Pumps Inc.
- Pumps, Chemical**.....Offer features that make them rugged, dependable, long-lived pumps for handling corrosive liquids. In 9 sizes providing capacities up to 720 gpm & heads up to 200 ft. Bulletin 725.4.
468X Goulds Pumps Inc.
- Pumps, Chemical**.....Available in sizes to handle up to 4,000 gpm at temperatures to 800 F. Feature Leakol-lector stuffing box gland and mechanical shaft seal. Request Bulletin No. 7095-A.
468Y Ingersoll-Rand.
- Pumps, Chemical**.....Lapp Pulsafeeder is a combination piston-diaphragm pump for controlled-volume pumping of fluids. Typical applications, description and specifications in Bulletin 440.
468Z Lapp Insulator Co.
- Pumps, Chemical**.....Reliability and maintenance economy are featured in Philadelphia Type S pumps for 85% of all chemical pumping needs. Can handle corrosives, slurries, etc. Request Bulletin S-1254.
468AA Philadelphia Pump Div.
- Pumps, Chemical**.....Model 50 chemical pump design features high pressures up to 10,000 psi, and stroke adjustment variable while pump is in full load operation. Details are in Bulletin F-741-HP.
468BB Seter Engineering Corp.
- Pumps, Chemical**.....Bulletin covers Warren rubber lined chemical pumps—Type DB. Gives service characteristics, construction, advantages, dimensions and specifications. Bulletin WQ-212.
468C Warren Pumps Inc.
- Pumps, Chemical, Oil-Lubricated**.....For pumping liquors, corrosive materials and solutions in the most used ratings to 3500 gpm, heads to 400 feet for liquids to 550 F. Bulletin 52B7638.
468DD Allis-Chalmers Mfg. Co.
- Pumps, Close-Coupled**.....Feature the "Q" Factor, the built-in quality which provides trouble-free satisfaction and long life. Description of Class CCL close-coupled pumps in Bulletin 975.
468EE Buffalo Pumps.
- Pumps, Close-Coupled Centrifugal**.....Type GSC pumps are standard centrifugal pumps that handle a wide range of general applications. Circular 191 gives details and complete range of sizes.
468FF Dean Bros. Pumps.
- Pumps, Condensation Return**.....Free Bulletins H-113, 113-HR, 113-LR-A, V-113, 114, 114PKG describe various types of condensation return units, vertical and horizontal, simplex and duplex.
472b *Aurora Pump Div.

* From advertisement, this issue

Pumps, Controlled Volume......32 p. catalog 553-1 contains specifications and design features of precise metering pumps. A special section has charts and data for materials selection.

469A Milton Roy Co.

Pumps, Corrosion Resistant......Manual CE-55 helps you select the correct corrosion-resistant pump for any application up to 350 gpm. Comparative data are shown for four types of pumps.

469B American Hard Rubber Co.

Pumps, Diaphragm......"A New Concept in Precision Metering and Proportioning of Fluids", containing schematic drawing and description, discusses McCannameter diaphragm pump. Booklet #301.

469C Hills-McCanna Co.

Pump, Diaphragm......Design features worm gear diaphragm and one step gear reduction eliminating need for gear reducer. Bulletin is available to supply details about this novel pump.

469D Rice Pump & Machine Co.

Pumps, Diaphragm......Cut operating and maintenance costs in handling corrosive, abrasive, viscous, heavy or delicate fluids. Double reciprocal piston pump requiring no packings. Bul. 137A.

469E T. Shriver & Co.

Pumps, Diffusion......A-2-P Air-cooled Purifying Diffusion Pump has speed, blankoff & forepressure tolerance ranking with best 2-in. diffusion pumps, without water-cooled system. Data Sheet.

469F National Research Corp.

Pumps, Diffusion & Booster......Unsurpassed for through-put, blank off, and fore-pressure tolerance and reliability. Offer long, trouble-free life, and are easy to maintain. Product bulletin available.

469G National Research Corp.

Pumps, Direct Flow......Illustrates Aldrich 6" Stroke Direct Flow Pump Series. Includes Triplex, Quintuplex, Septuplex & Nonduplex Pumps, ranging in power from 300 to 900 hp. Data Sheet 67A.

469H Aldrich Pump Co.

Pumps, Displacement......Bulletin describes 21 sizes of type "C" constant displacement radial piston pumps. Includes construction, operation, speeds, capacity and pressure ratings. Bulletin 46000.

469I Oilgear Co.

Pumps, Double Suction......Hydraulically balanced, efficient and durable. In sizes to deliver from 10 to 14,000 gpm for circulating, air conditioning, other plant services. Details in Bulletin 955-Q.

469J Buffalo Pumps.

Pumps, Duplex Steam......Bulletin WS-18 presents information about Wagener Type U duplex steam pumps. Includes popular models and specifications for a wide range of sizes. Section drawings.

469K Canton Stoker Corp.

Pumps, Filter......Filter pumps for highly corrosive solutions are described. Pumps are self-priming leakproof, centrifugal type, all plastic, incorporate backwashing features. Bulletin 102.

469L Sethco Mfg. Co.

* From advertisement, this issue

Pumps, Fluid Power......Type HG fluid power pumps for continuous pressure, constant displacement, heavy duty service are discussed in 4-page bulletin 46601-B now available from the manufacturer.

469M Oilgear Co.

Pumps, Gas......Positive control of volume and pressure, with the rotary impeller principle. Details in two bulletins, Bulletin 31-B-17 for small sizes & Bulletin 32-33-B-13 for larger units.

469N Roots-Connorsville Blower.

Pumps, General Purpose......Designed for a broad range of clean liquid applications, Roper Series 3600 Pumps are recognized for dependable performance, low maintenance. Catalog.

469O Geo. D. Roper Corp.

Pumps, General Purpose......Bulletin 119J gives engineering data on Type B general purpose pumps, Bulletin 106DS tells of Type A pumps, and 4-p. bulletin lists all Aurora pumps and literature.

472g *Aurora Pump Div.

Pump, Glassed......Corrosion-resistant pump is described in bulletin 725.2. Available in heads up to 140 ft., capacities up to 700 gpm. Handles alkalis and acids except hydrofluoric.

469P Goulds Pumps Co.

Pumps, High Pressure......Catalog describes Series HP Pumps. Meet conception of operating requirements—demanded by modern high pressure processing techniques. Catalog HP-1254.

469Q Phila. Pump & Machy.

Pumps, High Pressure......Warren six stage, type TH, high pressure pumps feature: modern casing design, semi-centerline support, lowest maintenance, radial bearing, tested performance, etc. Bul. 244.

469R Warren Pumps Inc.

Pumps, High Pressure......Four sizes for pressures up to 6000 p.s.i., capacity range: 100 to 1000 g.p.h. Five sizes for pressures up to 3000 p.s.i., capacity range: 50 to 1500 g.p.h. Bul. G-537.

473g *Cherry-Burrell Corp.

Pumps, High Vacuum......Catalog covers: industrial and scientific applications, types of vacuum systems, operating mechanism, vibration elimination, gas ballast, discharge valves, etc. Catalog 425A.

469S Kinney Mfg. Div.

Literature

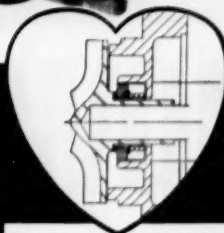
Continued on p. 472

now! greater safety and efficiency in

PUMPING CORROSIVE FLUIDS



BART
FLEX SEAL
CENTRIFUGAL PUMPS



At last—a full line of pumps specifically designed to handle corrosive and abrasive fluids in the 1 to 80 GPM range, at heads to 75 feet.

No longer need you cut down bigger pumps in range and lose efficiency—or put up with undependable smaller pumps.

Bart pumps have fewer parts to wear or get out of order. Six models, each in corrosion resistant Type 20 Stainless Steel. Or other alloys on special order.

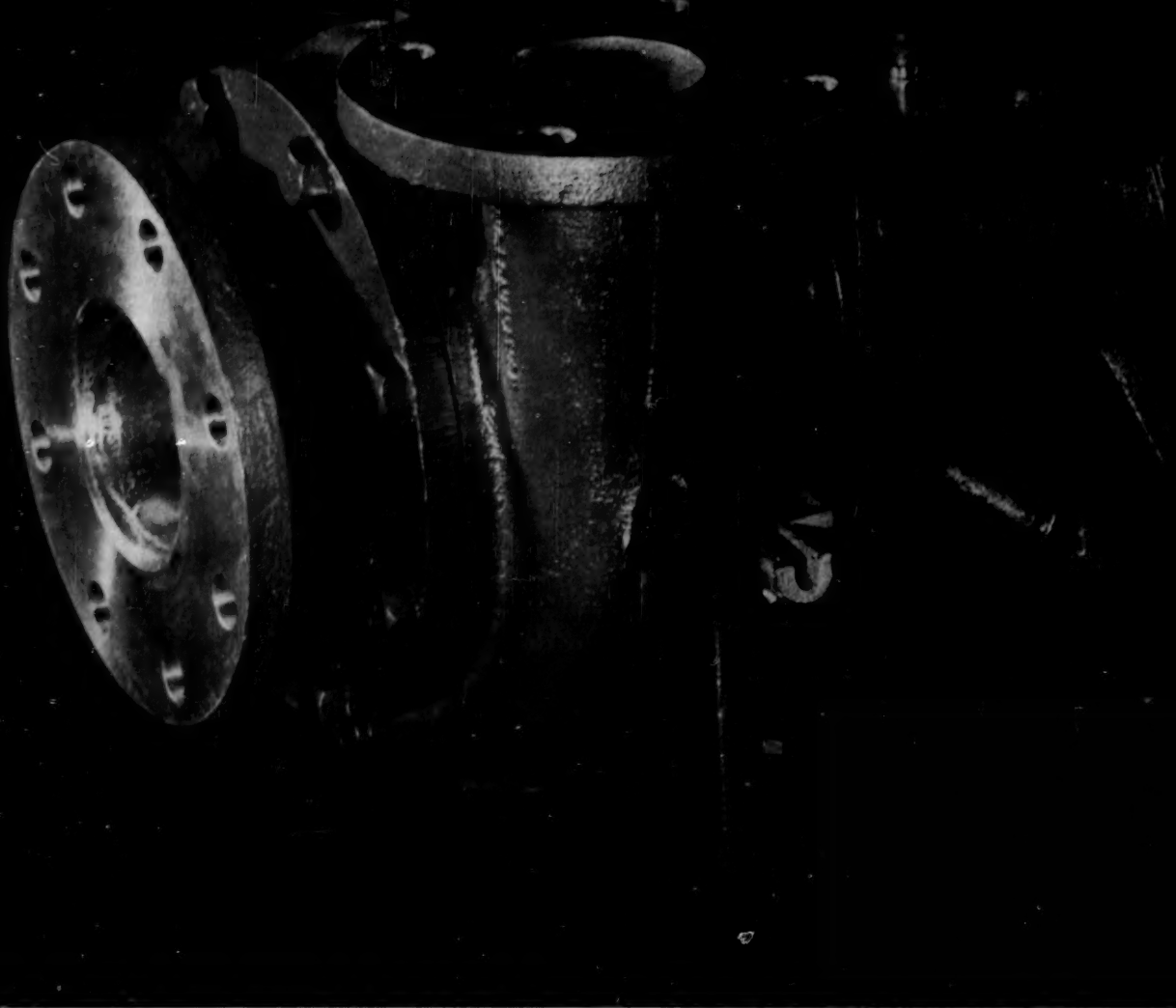
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Heart of the BART... the exclusive Flex-Seal!

Effectively minimizes a long-prevalent basic weakness of centrifugal pump design. Self-adjusting to wear. Needs no external lubrication. Carbon stator/ceramic seat, unexcelled for long wear—or zircon filled Teflon/work-hardened Type 20 Stainless Steel, for severest corrosive service.

BART MANUFACTURING CORP.

ELECTROFORMING • PIPE LINING & COATING • PLATERS • PUMPS • ENGINEERING DESIGN SERVICES
229 Main St., Belleville 9, New Jersey



HOW TO BUY A \$750

When you need a "special" pump, Worthington's SESC (Standard End Suction Centrifugal) line will often prove the low-cost answer.

For example, the chart above shows specifications for 21 different pumps, with a variety of materials of construction, which would ordinarily involve manufacture of special pumps. However, because all of these materials are available from the SESC line, the pumps can be bought at big savings.

The secret of Worthington's ability to give you many normally special pumps at standard prices is the flexibility of the SESC line. *Parts* have been standardized,

but not *pumps*. As a result, you can literally "custom-build" your pump to get exactly the right features to meet your requirements.

70,480 COMBINATIONS TO CHOOSE FROM. You have a choice, for example, of four materials of construction—iron, steel, bronze, Worthite* and combinations of these. You have a choice of five types of liquid ends and five different drives. You can choose packed stuffing box or mechanical seal operation. In all, there are 70,480 combinations—all built from standard, stocked parts and ready for prompt delivery at competitive prices.

*A high nickel, high-chromium, low-carbon alloy steel. Trademark Reg. U. S. Pat. Off.

IT PAYS to KNOW
ABOUT--



AURORA PUMPS

The broadening and advancing line of FINE PUMPS "by Aurora" is keeping pace with the exacting demands of modern industry. We invite you to send for CONDENSED CATALOG M-55 above or any of the following bulletins:

AURORA FREE LITERATURE

CLASSIFICATION	BULLETIN NO.
AURORA DEEP WELL TURBINE	
OIL LUBRICATED	102-A
WATER LUBRICATED	102-AA
AURORA SUMP PUMPS (WET PIT)	
LOW HEAD, SMALL CAPACITY	103-A
CELLAR DRAINERS	103-D
PACKAGED, MED. CAPACITY	103-D5
AURORA BILGE & NON-CLOG SUMP PUMPS (WET PIT)	104
AURORA HORIZ. & DIAG. SPLIT CASE	
DOUBLE SUCTION, SINGLE STAGE	105-B
SINGLE SUCTION, TWO STAGE	104-B
DIAG. SPLIT CASE, TWO STAGE	104-D5
AURORA END SUCTION PUMPS	
SINGLE STAGE, SINGLE SUCTION	107
SPRAY BOOTH, VERTICAL	107-GGD
SELF-PRIMING CONTRACTOR PUMPS	109
AURORA-APCO TURBINE-TYPE PUMPS	
MASTER, SINGLE AND TWO STAGE	111
CLOSE-COUPLED, MECHANICAL SEAL	111-DA
WATER JACKETED	111-WJ
HEAVY DUTY	111-XJ
PROCESSING	111-ZA
CONDENSATION RETURN UNITS	
HORIZONTAL	H-113
APCO-MATIC	113-HR
APCO-MATIC	113-LRA
AURORA VERTICAL	V-113
AURORA FLANGE MOUNTED	114
COND-A-PAC	114-PKG
END SUCTION PUMPS	
GENERAL PURPOSE	119
CENTRI-PAC PACKAGED	119-PKG
AURORA-SPRINKLER, IRRIGATION	120-G
AURORA NON-CLOG PUMPS (DRY PIT)	
AURORA NON-CLOG PUMPS	121-A
AURORA MONO-YANE	121-MV

We'll be PROUD to SERVE YOU

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THE NEW YORK AIR BRAKE COMPANY
63 LOUCKS ST. • AURORA • ILLINOIS
EXPORT DEPT. Aurora, Illinois—Export Address "NEADING"

Pumps, Blowers & Compressors

Literature Available

Pumps, High-Vacuum—
Pump, Process

Pumps, High Vacuum.....Kinney high vacuum pumps and high vacuum systems, including mechanical booster pumps and oil sealed mechanical pumps, increase production and lower costs. Literature. 472A Kinney Mfg. Div.

Pumps, High Vacuum.....Kinney high vacuum pumps don't have to warm up—pump-down starts with the first revolution. Power consumption is lower per cubic foot evacuated. Bulletin 425. 457 *Kinney Mfg. Div.

Pumps, Industrial.....Jabco Industrial Pumps; instantly self-priming; simple, compact, only one moving part; durable neoprene impeller; self-lubricated; trouble-free operation. Catalog sheets available. 472B Jabco Pump Co.

Pumps, Jet.....Catalog describes Penberthy jet pumps (ejectors, educators, exhausters, syphons). Includes capacities, construction, installation, operation & maintenance information. Catalog 512R. 472C Penberthy Injector Co.

Pumps, Liquor.....Warren liquor pumps—Types "L", "LS" and "A"—for pumping erosive and corrosive liquids, hot or cold. They are engineered for results and economical. See Bulletin 245. 472D Warren Pumps Inc.

Pumps, Metering.....Booklet includes specifications, chemicals commonly used in water conditioning, what they are used for, and the pump construction suited to inject them. Booklet 600. 472E Hills-McCanna Co.

Pumps, Metering & Proportioning.....Catalog covers Model "U" and "K" metering and proportioning pumps, the Hills-McCanna-meter and Model 4411 chemical pump. Request copy of Catalog 602. 472F Hills-McCanna Co.

Pumps, Metering.....Sup. Bulletin 1105-3 describes the unique features of a low-capacity, medium-pressure proportioning pump. Included are capacity table and cut-away dimension drawings. 472G Proportioners, Inc.

Pumps, Multistage.....Type "RR" Multistage pumps are highly efficient for high pressure applications with clear water, ideal for boiler feed service. Write for full details in Bulletin 980-D. 472H Buffalo Pumps Div.

Pumps, Multistage Centrifugal.....Types A, AC, OV and UNI multistage pumps for high temperature, high pressure, heavy duty service are covered in Bulletin 128 for sizes from 2 to 8 in. 472I Pacific Pumps.

Pumps, Oil Diffusion.....1-in. water-cooled oil diffusion pump produces high vacuum operating pressures economically at 15 liter per sec. rate. Brief description and installation instructions. 472J Arthur F. Smith Co.

Pumps, Paper Stock.....Handling high consistency liquids—save money and trouble with non-clogging paper stock pumps. Available in alloys or rubber-lined for corrosive & abrasive liquids. Bul. 953. 472K Buffalo Pumps.

Pumps, Piston.....Warren realwear horizontal duplex steam pumps for boiler feed, fuel oil pressure, oil transfer, general water service, and a variety of other services. Request Bulletin 230 revised. 472L Warren Pumps Inc.

Pumps, Piston-Diaphragm.....For controlled-volume pumping of fluids, Flow-charts, typical applications and specifications and models of various capacities and constructions in Bulletin No. 440. 472M Lapp Insulator Co.

Pumps, Pit.....Company offers free catalogs on Heavy-Duty Vertical Wet Pit Pumps for solids-free liquids. These pumps save space and money, stop leakage. Request literature. 472N Yeomans Co.

Pumps, Positive....."How Industry Profits With Viking Pumps" presents application material in industries such as petroleum products, chemicals and foods. Tells about 750 catalog models, many specials. 472O Viking Pump Co.

Pumps, Positive Displacement.....Designed with the spring-loaded, John Crane rotary seal, they are recommended for non-abrasive products having corrosive properties. Product details. 472P Waukesha Foundry Co.

Pumps, Positive Displacement.....Unique TriRotor principle is described with cutaway drawings. Special features and points of superiority listed along with field of applications. 472Q Yale & Towne Mfg. Co.

Pumps, Process.....Type Z4 APCO process pumps is ideal for the handling of liquefied petroleum gases, refrigerants and other light non-viscous liquids. Latest design features. Bulletin 111-ZA. 472R Aurora Pump Div.

Pumps, Process.....DeLaval CPO-process pumps handle numerous liquids; salt brine; sea water; caustic solution; soap solutions; etc. Capacities to 2000 gpm—heads to 200 ft. Bulletin 1125-B. 472S DeLaval Steam Turbine Co.

Pumps, Process.....Type SVS centrifugal pump is designed for most advantageous application of the mechanical shaft seal. Rated 15 to 1300 gpm. at pressures to 600 psi. it's designed for easy servicing. 472T Pacific Pumps.

Pump, Process.....Peerless type DL & DM chemical process pumps feature: accessibility, durability, serviceability, interchangeability, reliability and availability. For complete details, see Bulletin B-1608. 472U Peerless Pump Div.

Pump, Process.....A versatile HN centrifugal pump is designed especially for pumping problems and can meet all operating conditions up to 850 F and 600 psig. Data. 52-3 *Worthington Corp.

* From advertisement, this issue

1957 INVENTORY

Pumps, Propeller.....Lawrence Propeller Pumps are made of metals and alloys best suited for their ability to resist the corrosive and abrasive action of the liquid pumped. Bulletin 203-7.
473A Lawrence Pumps.

Pumps, Proportional.....Information on Series 500 proportional mixing-metering pump for two part resins. Choose from several models for potting-casting, encapsulating, adhesives, foams.
473B H. V. Hardman Co.

Pumps, Proportioning.....Displaces entire contents of the cylinder at each stroke of piston irrespective of stroke adjustment. External check valves easily removed. Request a copy of Catalog 406.
473C American Instrument Co.

Pumps, Proportioning....."Positive Flow Control," 12 p. catalog 890 describes four basic models of precision proportioning pumps for use with flow in the range of 0-739 gph. Send for your copy.
473D Hills-McCanna Co.

Pumps, Proportioning.....Model 1106 Proportioner feeds all chemicals (alkaline, neutral, or acid) accurately (guaranteed within $\pm 1\%$) over 15 to 1 range. Full details made available in Bulletin 1106-2.
473E Proportioners, Inc.

Pumps, Proportioning.....Features which contribute to the exceptional feeding accuracy, positive feed rate setting, and initial and operating economies of Proportioner described in Bulletin 1140.
473F Proportioners, Inc.

Pumps, Reciprocating.....Horizontal, forged steel cylinder, steam driven reciprocating pumps for a wide range of heavy duty, high pressure services. Sizes, capacities, specifications in Circular 146A.
473G Dean Bros. Pumps.

Pumps, Rotary.....Company offers bulletins on Roper pump-motors, Series F pumps, Series K pumps, Series H pumps and Series 3600 pumps. Complete details in bulletins.
473H Geo. D. Roper Corp.

Pumps, Rotary.....Catalog covers rotary pumps for manufacturing, marine, petroleum, process industries and hydraulic pump motors for high torque, low speed, power transmission. See Catalog 957.
473I Geo. D. Roper Corp.

A or a?

It's important, when you write code numbers on the Reader Service postcard, to write the letters as they appear with the code numbers.

Capital letters: A, B, C, etc., are used for editorial items.

The small letters: a, b, c, etc., are used for different items within an advertisement.

To make sure you get what you want, use capital and small letters as they appear on items or in your Product Index (p. 499).

Pumps, Rotary.....Wayne Pump Co. announces five series of Internal Gear Rotary Pumps. Offer versatility in field of positive displacement liquid pumps. Descriptive literature.
473J Wayne Pump Co.

Pumps, Rotary....."Continuity" catalog defines firm's internal gear rotary pump line. Contains definitive, useful and easily derived information. All data performance figures. Request catalog.
473K Wayne Pump Co.

Pumps, Rotary.....Company offers booklet to help locate and correct common ailments of rotary, centrifugal, and steam pumps. Gives full description of pump troubles. Bulletin PC-508P.
473L Worthington Corp.

Pumps, Rotary, Gas Ballast.....Equal any mechanical pump under ideal conditions but continue to do job even when pumping 100% water vapor or other condensable vapors. Data Sheet.
473M National Research Corp.

Pumps, Rotary, Gear-Type.....Best for handling high-viscosity fluids as their large, unobstructed passages mean low entrance losses. Also, no valves or valve springs. Bulletin W-483-B2.
473N Worthington Corp.

Pumps, Sand.....Rubber lined sand pumps lower pumping costs 30% to 70% due to simple design and accuracy of rubber parts which increase efficiency $1\frac{1}{2}$ to 3 times over other sand pumps. Bul. P9-B8.
473O Denver Equipment Co.

Pumps, Sanitary.....XB-SAN series of Sani-Flex Sanitary pump units for handling food products; pharmaceuticals, corrosive solutions & abrasive slurries, announced by Vanton Pump. Literature.
473P Cooper Alloy Corp.

Pumps, Screw.....Two bulletins cover Warren Quimby—the original screw pump—double external bearing and gear type, double external bearing and gear hopper type. See Bulletins WQ-S205 and WQ-S206.
473Q Warren Pumps, Inc.

Pumps, Screw.....The pitch of the screws, along with the full load speed of the motor, determine the capacity of the Warren screw pump. Standard pumps in all machineable metals. Bul. S205.
473R Warren Pumps Inc.

Pumps, Screw.....Two types: gear-in-head for handling lubricating liquids free of corrosive elements and solids; double external bearing and gear for handling all other liquids. Bulletin WQ-3205.
473S Warren Steam Pump Co.

Pumps, Sewage.....Heavy duty construction, close tolerance dowel-ring fittings from motor base through to pump casing, and alignment of all rotating and guide-bearing parts. Bulletin 7500.
473T Deming Co.

Pumps, Single Suction.....Outstanding features of Buffalo single suction pumps are: oversize bearings to handle speeds up to 5000 rpm, sealed-in bearing housing, enclosed impellers. Bul. 976-E.
473U Buffalo Pumps Div.

the

Beach-Russ

Combination

"TWO-STAGE" VACUUM PUMP

No. 100
Combination
"Two-Stage"
Vacuum
Pump



The Beach-Russ Combination "Two-Stage" Vacuum Pump gives tops in service at the low micron range.

- Faster Pump-Down
- Faster Recovery
- Lower Blank-Off Pressure
- Conditioned Oil Supply
- For Dry or Wet Systems

Write today for
NEW "Two-Stage"
Bulletin 95

BEACH-RUSS COMPANY
50 Church St. - New York 7, N. Y.

New Pumps, Blowers & Compressors

1957 INVENTORY

Literature Available

Pumps, Slurry—
Vents, Tank

Pumps, Slurry....."The Oliver Diaphragm Slurry Pump" describes the features, applications, sizes and capacities, installation instructions and power requirements of unique slurry pumps. See Bulletin 5003.
474A Dorr-Oliver Inc.

Pumps, Slurry.....Details of the Manzel SP-90 Slurry Pump contained in a Bulletin. This pump prevents settling; pumps slurries at rates varying from over 15 gals maximum to 2 1/4 gals. minimum per hour.
474B Manzel Div.

Pumps, Solids....."Fluidizer" will convey most powdered materials as easily as water. Booklet tells of fluidization and the "Fluidizer's" application to industrial transporting of powdered solids.
474C Superior Separator Co.

Pumps, Stock.....Factory stock of the most commonly used sizes of centrifugal pumps is always ready for immediate delivery. Request a copy of the B & G Stock Pump Catalog CSP-257A.
474D Bell & Gossett Co.

Pumps, Stock.....Four bulletins cover Warren stock pumps for pulp and paper mills. These bulletins are all revised. For complete details, see Bulletin 231, Bulletin 234, Bulletin 235, Bulletin 243.
474E Warren Pumps Inc.

Pumps, Submersible.....F-M water-lubricated submersible pumps need no above-ground housing, no line shafts or lubrication devices. Installation is fast and economical. Request Bulletin 6910.
474F Fairbanks-Morse Co.

Pumps, Submersible.....New Johnston submersible pump Bulletin 1020 describes submersible pumps with 4 to 7 in. bowls and with horsepower ratings to 20 hp. and capacities ranging up to 375 gpm.
474G Johnston Pump Co.

Pumps, Sump.....Three advantages are featured in the "Buffalo" sump pump; easy installation; always in prime (since there is no suction lift); & simplified maintenance. Bulletin No. 963-F.
474H Buffalo Pumps.

Pumps, Sump.....Centrifugal sump pumps—Types VS and VN—wet and dry pit types for clear liquids, sewage and other liquids containing solids. Eight sizes offered. Request Bulletin WG-220.
474I Warren Pumps Inc.

Pumps, Sump.....Bulletins 103-A, 104 and 103-DS describe company's line of sump pumps—Types MSM (low head, small capacity), DSA (packaged), NSA and KS (heavy duty vertical). Illustrated.
472a *Aurora Pump Div.

Pumps, Truck.....Viking truck pumps save time and money when loading and unloading liquids or semi-solids. Powered from the truck, equipped with integral relief valves. Catalogs Gc and SP377c.
474J Viking Pump Co.

Pumps, Turbine.....Turbine pumps used to deliver water from deep wells, lakes or streams, for factory water supply. In many cases, these pumping units have cut water costs in half. Bulletin 6700.
474K Deming Co.

Pumps, Turbine.....Describes water & oil lubricated Layne vertical turbine pumps, their application, & pump drive heads designed for water wells serving industry, municipality. Bulletin WO-53.
474L Layne & Bowler.

Pumps, Turbine.....Bulletins 102-A, 102AA, 111, 111-DA, 111WJ, 111XJ and 111ZA discuss company's line of turbine pumps, oil- or water-lubricated, for a wide variety of industrial duties.
472e *Aurora Pump Div.

Pumps, Vacuum.....Beach-Russ vacuum pumps give: fast "pump-down"; high efficiencies; quiet, vibrationless operation; long service life. Available in a range of types and sizes. Bulletin 89.
474M Beach-Russ Co.

Pumps, Vacuum.....Beach-Russ combination "two-stage" vacuum pump gives tops in service at the low micron range. Faster pump-down, faster recovery, lower blank-off pressure. Ask for Bulletin 95.
474N Beach-Russ Co.

Pumps, Vacuum.....Bulletin on integral motor vacuum pumps gives mechanical advantages, standard accessories, special accessories, performance tables and application ideas. Bulletin V-356 available.
474O Gast Mfg. Corp.

Pumps, Vacuum.....Bulletin shows how 35 product problems were solved with Gast rotary air motors, air compressors, vacuum pumps. Gives application ideas for product designers. Bul. 1054.
474P Gast Mfg. Corp.

Pumps, Vacuum.....Bulletin describes company's three, four and five stage steam jet vacuum pumps and vacuum boosters. Describes both condensing and non-condensing types. Bulletin 5H3.
474Q Schutte & Koerting Co.

Pumps, Vacuum.....Company offers catalog 752, "Stokes Microvac Pumps for High Vacuum", and booklet 755, "How to Care for Your Vacuum Pump". Microvac pumps are compact and highly efficient.
474R F. J. Stokes Corp.

Pumps, Vacuum.....Combination "Two-Stage" vacuum pump gives top service at low micron range, with faster pump-down and recovery, lower blank-off pressure and conditioned oil supply. Bul. 95.
473 *Beach-Russ Co.

Pumps, Vacuum, Rotary.....Versatile pumps available in capacities from 20 to 180 c.f.m. for any laboratory, development or production work. Company gives information in Catalog 90.
474S Beach-Russ Co.

Pumps, Vapor Purge.....Beach-Russ "Vapor Purge" pumps are designed to give high efficiencies on moist circuits. Impossible for vapors to condense in pump and impair efficiency. Literature.
474T Beach-Russ Co.

Pumps, Vertical.....Easy to use table for determining horsepower, capacity and head for vertical pumps in Bulletin 1100. Contains sectional views, material specifications, schematic dwgs.
474U Layne & Bowler Pump Co.

Smokestack, Glassed Steel.....How Permaglas smokestacks lengthen life and lower cost is discussed in Bulletin SS-202. Compared to other lined stacks, protection lasts three to five times longer.
474V A. O. Smith Corp.

Snubbers.....Stops noise from intake and exhaust of air, etc., and stops pulsation caused by line surges from compressors, pumps, and blowers. Company offers complete literature on pulsation snubbers.
474W Burgess-Manning Co.

Vacuum Equipment.....High vacuum equipment for laboratory and industrial use is set forth in new general catalog. Vacuum pumps, valves, traps, gages and accessories are all described.
474X Cons'd. Electrodynamics.

Vent Sets, Belted.....Efficient, quiet, non-overloading. Simple package installation, indoors or out. Capacity adjustable by changing sheaves. Capacities from 1000 to 20,000 cfm. Bulletin 3720.
474Y Buffalo Forge Co.

Pumps, Vertical Turbine.....Deming Vertical Turbine Pumps offer many cost-saving features and advantages, can pay for their cost in a year or less where municipal water rates are high. Bulletin 4700.
474Z Deming Co.

Ventilator, Roof.....Descriptions together with dimensions and capacities are given in Bulletin 550 for the ventilator, a centrifugal type roof ventilator with an exclusive jet Siphon feature.
474AA Clarage Fan Co.

Ventilators, Fume.....Report "Corrosive Fume Ventilation Equipment" illustrates and covers recommended exhaust rates, procedures, air flow charts, types of systems and equipment.
474BB Heil Process Equip. Co.

Ventilators, Roof.....Centrifugal type power roof ventilators are stable, highly efficient, quiet, easily installed, suited to installations with and without ductwork and hoods. Write for Bulletin 550.
474CC Clarage Fan Co.

Ventilators, Roof.....Three "low silhouette" sizes added to the Ilg roof ventilation line. Models range in height from 6 1/2 to 12 1/2 inches. Capacities range from 287 to 938 cfm. Bulletin 2300.
474DD Ilg Electric Ventilating Co.

Vents.....Company offers manual, "Venting Fundamentals", on its vapor conservation vents designed for low-cost maintenance. Fully fire protective, simple, sturdy, easily cleaned and serviced.
474EE Protectoseal Co.

Vents, Tank.....OPW Tank Vents trap and hold vapors and release at set pressures, insuring maximum protection and dollar dividends. OPW Tank Venting and Emergency Relief Recommendation.
474FF Jordan Corp.

* From advertisement, this issue

Literature Available

NEW SAFETY EQUIPMENT

Apparel, Industrial. . . . Chem-Wear introduces competitively-priced line of industrial work-clothing. Combines 68% Dynel with 32% cotton to produce light, tough garment. Request literature. **475A** Chem-Wear.

Containers, Laboratory. . . . Oval one-gallon laboratory safety container needs less shelf space, protects volatile chemicals from fire and explosion. Also wide-mouth chemical disposal cans. File 68. **476-7e** *Protectoseal Co.

Containers, Safety. . . . Protectoseal safety containers can be made from stainless steels, monel metal or hot tin dipped for corrosive liquids. Further information by requesting File No. 67. **476-7d** *Protectoseal Co.

Covers, Tank Car. . . . Liquid-tight dome cover saves time and eliminates chance of fire and explosion when distributing flammable liquids to or from railroad tank cars or tank trucks. File 70. **476-7i** *Protectoseal Co.

Dispensers, Laboratory. . . . Safe chemicals transfer to small mouth containers is best accomplished with a flexible metal spout, with no spillage, no waste, no excessive vapors. File 71. **476-7h** *Protectoseal Co.

Eye Protectors. . . . Illustrated bulletin lists plastic eye protective equipment, including methacrylate lenses in safety spectacles, eye shields, clip-ons, cover goggles and face shields. Bul. 200. **475B** Watchemoket Optical Co.

Face Shields. . . . CESCO 770 Face Shield comes in 3 window lengths—4", 6" and 8". Also offer snap-fast face shield with deflector crown, helmet-type face shield, spark shield, etc. Details in catalog. **475C** Chicago Eye Shield Co.

Fire Extinguishers. . . . For information on dry chemical, carbon dioxide, and wet chemical fire extinguishers write in for Kidde's P-8 catalog. Easy to use, fast action, portable, different sizes. **475D** Walter Kidde & Co.

Fire Extinguishers. . . . Fire extinguishers are described in a buyers guide. Information on dimensions, discharge ranges, laboratory approvals and classifications and construction data. TD 1290. **35-6k** *U. S. Industrial Chem. Co.

Fire Extinguishing Systems, Carbon Dioxide. . . . Features: all operating parts completely enclosed. no clumsy triggering methods or falling weights, self-contained easy testing of all parts. Booklet. **475E** Walter Kidde & Co.

Fire Hydrants. . . . Fire hydrants for plant fire protection in types and sizes for all requirements. Modern ball bearing operation with "O" ring seals make hydrants packless, dry-top. Bul. 5403. **475F** Darling Valve & Mfg. Co.

Fire Protection Systems. . . . Complete discussion of the nature and advantages of fire protection systems is found in 36-page Bulletin 66. "The ABC of Fire Protection." Components and systems are included. **475G** Automatic Sprinkler Corp.

Fire Protection Systems. . . . Automatic fog system protects you around the clock, sounding alarms & putting water to work instantly whenever needed. "Fire can Destroy Your Business". **475H** Blaw-Knox Co.

First Aid Kits. . . . 6 p. First Aid Catalog is available containing a listing of over 100 unit packs, photographs of kits, catalog numbers & complete descriptions of kits & units. Upon request. **475I** E. D. Bullard Co.

Gloves, Industrial. . . . Catalog describes line of curved-finger rubber, latex, neoprene, Buna-N, and compar plastic gloves. Includes a chart of finger cot sizes in actual diameters. **475J** Wilson Rubber Co.

Overload Warning Signals, Lift Truck. . . . Attachment warns driver by signal light or bell (optional), that load he has picked up is in excess of safe operating capacity of truck. Literature. **475K** Lamson Mobilift Corp.

Radiation Protection. . . . 4 p. bulletin 407 describes services for health and safety precautions against hazards of radioactivity. These include accountability, criticality precautions. **475L** Nuclear Science & Eng. Corp.

Safeguards, Combustion. . . . Bulletin describes the operation and construction of Selas automatic fire checks and Selas safety blowouts. Principles of operation and installation data. Bul. SC-1006. **475M** Selas Corp. of America.

Safety. . . . Bulletin PS 201 "Manual of Laboratory Safety" covers accident prevention, first aid, fire prevention, safety equipment and includes a safety bibliography. Covers radioactive materials. **475N** Fisher Scientific Co.

Safety. . . . Revised safety folder including list of antidotes for all agricultural chemicals, which contain antidotes for newer insecticides like Phosdrin, Thimet and Guthion. Lists approved handling equipment. **475O** United-Heckathorn.

Safety Equipment. . . . Scott Air-Paks cut repair & maintenance costs. On hazardous jobs, Air-Paks help man-agement & labor to breathe easier. "Scott Air-Paks Save Money, Man Hours . . ." **475P** Scott Aviation Corp.

Safety Equipment, Storage Tank. . . . Company offers Safety Bulletin Series on "Flammable Liquids, their characteristics, hazards and safe handling." Includes: conservation vents, tank openings, etc. **475Q** *Protectoseal Co.

Sprinkler Systems, Automatic. . . . Blaw-Knox engineers, fabricates and installs automatic sprinkler systems that are always alert to detect, confine and quench a fire at its origin. Bulletin 2426. **475R** Blaw-Knox Co.

Vents, Flame Arrester. . . . Protectoseal conservation type vent with flame arrester located outside the valve housing keeps tank protected against fire and explosion. Conservation Vent File 64. **476-7a** *Protectoseal Co.

Vents, Flame Arrester. . . . Protectoseal in-line type flame arrester vents can be installed within tank houses, on chemical process tanks, storage tanks, bleed lines, bleed tanks, etc. File 65. **476-7b** *Protectoseal Co.

Vents, Tanks. . . . Steam heated storage tanks and safety venting equipment are required for certain liquids, wherever crystallization of vapors occurs at normal temperatures. Data in File 70. **476-7g** *Protectoseal Co.

Windstorm Damage Prevention. . . . 40 p. technical publication describes how to prevent windstorm damage & save lives & property. A source of information on tornadoes, hurricanes, & severe storms. **475S** Nat'l. Bd. of Fire Underwriters.

* From advertisement, this issue

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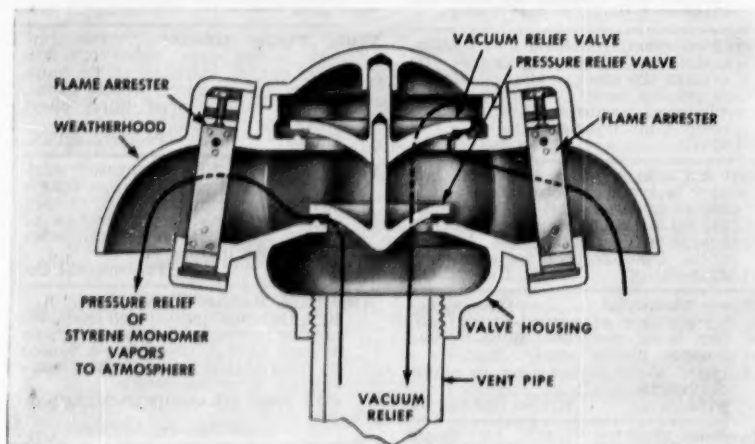
Fill out the proper blanks on the Reader Service card in this issue. We'll do the rest.



FLAMMABLES ENGINEERING

FLAMMABLES CONTROL METHODS AND PRACTICES IN PRODUCTION,

Styrene monomer vapors controlled to reduce vent clog-up...prevent tank rupture



Chemical manufacturer stores styrene monomer in 30,000 gallon horizontal tanks at atmospheric pressures and temperatures. Plagued by polymerizing which clogs flame arrester vents... flash point of 90°F requires protection against ignition of vapors from outside sources. Tried various means to keep arresters open without success... installed Protectoseal conservation type vent with flame arrester located outside the valve housing... arrester now subject to vapors only when valves open. Result: checked weekly during 11-month period... including hot summer months... report no plugging of valves or arresters... tank protected against fire and explosion... arrester location outside valve housing provides for quick, visual inspection.

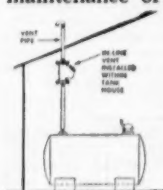
For Further Information
Check Conservation Vent File No. 64 on Coupon

Eliminates costly roof-top vent maintenance

Protectoseal in-line type flame arrester vents installed within tank



houses... on chemical process tanks... storage tanks... bleed lines... bleed tanks... or other waste gas lines. Installed 20 to 50 feet from open end of vent pipe depending on vent sizes... and it's approved. Prevents flash-backs through vent opening... protects volatile liquid tank vapors against fire and explosion... provides easy inspection and maintenance of flame arrester element... arrester protected from outside atmospheric conditions and freezing... no difficult, costly roof-top or upper wall inspection and maintenance.



For Further Information
Check In-Line Vent File No. 65 On Coupon

Now! Viscous liquids dispensed quickly—without waste

No more clinging slop-overs... no more sticky rubber cement cans... now—quick, clean, cut-off when dispensing. Spring actuated knife-edge closure operated by carrying handle cuts dispensing stream cleanly... instantly... upon release. No hardening by solvent evaporation... no waste time... no mess... no time-consuming clean-up.

For Further Information
Check Viscous Liquids Dispenser File No. 66 On Coupon

Safety space-savings in chemicals handling



Oval shape, 1-gallon laboratory safety container requires far less shelf space for chemicals storage... four cans easily placed in same area required by two or three ordinary cans. Protects volatile chemicals from fire and explosion... provides easy method for storage and visual labeling.

For Further Information
Check Laboratory Container File No. 67 On Coupon

Static electricity—a hazard in flammable liquid dispensing



Generated in all volatile liquid dispensing processes... found in many everyday operations. Best protection is grounding... permits electricity to flow away... stops sudden sparks and ignition of volatile vapors.

Protectoseal transfer pump hose for dispensing flammable liquids from drums has special metal wire insert running full length of hose... forms static-free ground between pump and receiving container.



Quick shut-off, non-drip Protectoseal safety drum faucet with flexible metal hose also forms static-free ground with receiving container. Result: volatile vapors protected against ignition from static sparks.

For Further Information
Check Drum Dispensing File No. 68 On Coupon

BY PROTECTOSEAL

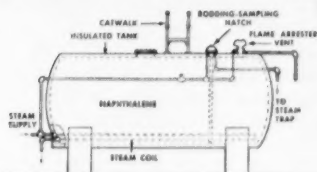
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Fundamentals of steam heated tank venting

Steam heated storage tanks and safety venting equipment required for certain liquids . . . wherever crystallization of vapors occurs at normal temperatures. Important that tank safety venting equipment, flame arresters and other operating fittings be heated . . . kept free of clogging



action of crystallizing vapors to provide required pressure and vacuum relief . . . prevent rupture of tank. Rodding and sampling equipment must also be heated to permit satisfactory operating procedures.

Practical methods provide adequate insulation and proper heating by steam coils or pipes to temperatures often reaching as high as 178°F.

The diagram shows the theory of installing steam jacketed equipment on a horizontal tank containing Naphthalene.

For Further Information
Check Fundamentals of Tank Venting File No. 69
On Coupon

Safe chemicals transfer to small mouth containers



Best accomplished with flexible metal spout . . . directs liquid flow accurately . . . safely . . . to small fill openings of receiving containers. No spillage . . . no waste . . . no excessive vapors. Flexible metal spout makes contact with metal receiving container . . . forms static-free ground . . . prevents ignition of volatile vapors from chance spark.

For Further Information
Check Laboratory Dispensing File No. 70 On Coupon

Loading-unloading volatile liquid tank cars—safely!

Liquid-tight dome cover saves time . . . eliminates chance of fire and explosion when distributing flammable liquids to or from railroad tank cars or tank trucks. No sparks when making or breaking loading pipe connections . . . pipe attached quickly . . . held securely . . . speeds loading-unloading time . . . with safety. Dome cover contains pressure-vacuum relief provisions . . . avoids creating a vacuum . . . prevents possible rupture of tanks while pumping.



For Further Information
Check Tank Car, Tank Truck Cover File No. 71
On Coupon



AT YOUR SERVICE / specialized experience in FLAMMABLES ENGINEERING

Practical help in controlling flammable liquids used in production, processing and maintenance is readily available from Protectoseal Field Engineering Service without cost or obligation. Experienced field engineers who work constantly with flammable liquid uses and applications in many different industries have acquired a wealth of first-hand knowledge and experience which enable them to suggest practical ideas and adaptations for safe cost savings in storage, handling and use.

R. "Harp" Folkemer
serving key industrial areas in
Ohio, New York, Western Pennsylvania



FLAMMABLES ENGINEERING DATA

also available on any of the following flammables hazards

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File No. 56—Leaky Drum Faucets

File No. 59—Clogged Paint Spray Guns

File No. 57—Disposal of Oil Soaked Cloths

File No. 62—Protecting Paint Brushes

File No. 58—Dispensing Solvents within the Plant

File No. 63—Cleaning Small, Delicate Parts



The Protectoseal Company
1948 So. Western Avenue, Chicago 8, Illinois

☐ Please register my name for regular issues of Flammables Engineering Bulletin

☐ Send additional data on FILE NO's. 56, 57, 58, 59, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71

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As a new feature of your Inventory Issue, we review the employment picture as it appears today. And as it will appear next year. Although many jokes are made about shortages of engineers, the situation is not humorous. Employment is a vital subject—no matter which side of the pay window you're on. So this section tries to give a true appraisal as well as to present employment opportunities offered by progressive firms. Note that this Searchlight Section also has two other parts advertising professional services and equipment:

The Job Outlook	479
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Straight Facts on the 1958 Job Outlook

Defense economies force some engineers out into the streets. But we still have a shortage of good men for top jobs.

R. F. Fremed, Associate Editor

WHILE the long-range picture for engineering jobs is brighter than ever, you can mark 1957 down as a year of change and controversy.

The Congress and the President caused much of the change by insisting that the Dept. of Defense must now stay within its authorized appropriations. At the same time the Davis Committee of the House of Representatives started looking into the engineering recruiting practices of certain defense contractors. This caused some of the controversy.

But major battle lines were drawn on the question of the "engineering shortage." Do we or do we not have one? During the first quarter of the year there wasn't much of a question. As we stated then (*Chem Eng.*, Jan. 1957, p. 281):

"Chemical process industries are planning to spend something like \$4½ billion on the coming year's expansions and like sums in succeeding years, and defense spending is slated to remain at a high level. So jobs available will easily blot up the 1,200 or so new graduates left to industry after ROTC programs, reserve enlistments, the draft and graduate schools levy their tax on the slightly over 2,700 new chemical engineers due to graduate in the coming months.

"The 1,000-1,500 ChE's now in the services who'll pick up their discharge papers in '57 will also be eagerly sought after by engineer-hungry chemical firms."

Some Sudden Changes

This was the situation as we saw it for the first quarter of this past year. Then, in quick succession:

- The Defense Department



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chose the first of May to announce that overtime work on defense contracts was to cease unless special permission is granted after careful scrutiny as to the urgency of and necessity for such work.

- A technical career conference and recruiting exposition, scheduled to be held in Chicago during the week of June 8th, was canceled because of "congressional delay in approving the budget for the Defense Department. . . . So damaging has been this uncertainty, that leading companies have drastically curtailed recruiting and they have asked that the conference be postponed."

- In an economy move, the Air Force suddenly canceled (on July 10) the Navaho guided missile project on which more than half a billion dollars has been spent over an 11-yr. span. North American Aviation's

plant in Downey, Calif., had been the work center for the Navaho, and the reaction was swift. Layoff orders were issued to 12,000 workers, including more than 1,000 engineers.

- A hoped-for loosening of the tight money policies of the Federal Reserve System did not materialize as Congress moved on to the question of civil rights and the prospect of ending a hot summer in Washington. Tight money kept capital expenditures in check and many companies were forced to rely on the accumulation of internally generated capital funds before they could go ahead full steam on some of their anticipated engineering projects.

A Shortage Becomes a Surplus

With these sudden changes, no wonder that our economists and statisticians have found it difficult to keep up-to-date with

the engineering-manpower situation. This is where most of the controversy now arises.

We can sympathize with those who must work with statistics, because for the past several months we have been asking every likely soul in sight for his opinion on the engineering shortage and the job outlook for engineers. The opinions add up to a stalemate.

As the last quarter began, a recruiter from one of our giant corporations told us that "as of this date there is no shortage except for nuclear physicists—they're impossible to get—and some electronic specialties. In the other branches [of engineering] we can get all we want."

On the other hand, that very afternoon the plant engineer of a large chemical operation in western Pennsylvania told us: "We're getting three new projects dumped in our lap real soon. I wish I knew where to find three top-notch project chemical engineers in a hurry. Lord knows, I've been looking for them. We don't know where to find them."

These differing opinions are from engineering administrators. They are certainly contradictory. But this diversity of opinion is nothing compared to what our economists are now saying about each other's statistics.

No, There Is Not

A study published on July 1 kicked off the battle of words. On that date "The Demand and Supply of Scientific Personnel," by David M. Blank and George J. Stigler was released for publication by the National Bureau of Economic Research, Inc.

The New York Times immediately headlined: "Study disputes engineer dearth; researchers base findings on pay drifting below that of other workers."

Weekly magazines assigned editors to read the 200-p. book overnight and to rush stories into print. With little time available for the careful analysis that economic statistics require for their proper digestion, several stories appeared that announced to the chemical process industries the startling and contradictory opinion that there has

not been nor could there possibly be a shortage of engineers.

Yes, There Certainly Is

McGraw-Hill's Department of Economics took almost a month to study the full impact of what the authors were trying to say. Then Bill Chartener, *CE's* economic consultant, gave us his conclusions:

"The National Bureau of Economic Research, which enjoys the awesome reputation of a College of Cardinals in the field of economics, has just published a book that asserts 'there is no evidence of a shortage of engineers.' On this point the book stands in clear disagreement with the numerous engineering educators and employers, professional societies and governmental agencies that have for several years been maintaining there is a very severe shortage of engineers and scientists.

"The dissenting opinion expressed in the National Bureau's new book is based on (1) the premise that, if there were a shortage, engineers' salaries would rise relative to the incomes of other workers and (2) statistics that show little or no such relative gain.

"A close look, however, shows serious weaknesses in both the method of analysis and the statistics. The most serious weakness is the age of the statistics, which, even when the book went to press, were too old to reflect accurately a fast-changing situation."

The conclusion by Blank and Stigler that there is no shortage of engineers rests on the principle that increases in demand relative to supply, in a *free market*, will manifest themselves in a rising price relative to prices in other markets. The authors analyzed data on earnings of engineers since 1929, found that engineering salaries have declined substantially relative to earnings of all wage earners and relative to incomes of independent professional practitioners. Therefore they concluded that the record of earnings suggests "that up to at least 1955 there had been no shortage—in fact an increasingly ample supply—of engineers."

The only concession the book

makes to the popular view that there has been a shortage of engineers is for a short period after 1950. At that time, because of the expansion of military procurement and the increase of government expenditures associated with Korea, "engineers salaries rose substantially for at least two years, and at a rate exceeding that in the independent professions and the labor force as a whole."

But this is dismissed as "hardly more than a minor cross-current in a tide."

Predict a Bleak Future

The book foresees, for the puzzled engineer who has been courted in page after page of seductive display advertising, only a worsening of his position of rising supply relative to demand.

Why?

Because the "differentials of engineers' earnings above those of the academically untrained labor force are still in excess of the costs of obtaining an engineering degree." So long as this remains true, the authors imply, youngsters will continue to enter engineering in large numbers. This will narrow the remaining gap between engineering salaries and earnings of academically untrained labor.

Other Weather Vanes

Although Dr. Blank and Professor Stigler regard the reactions of the pricing system—namely, changes in salaries—as the proper way to gage the existence of a shortage of engineers, there are other indicators. For example, the U. S. Employment Service reports the number of job openings on the lists of state employment services that cannot be filled locally.

In the last two years, engineering jobs have consistently accounted for almost 20% of all such openings, and the number of openings listed for engineers rose from under 4,000 in the first half of 1955 to over 6,000 from March 1956 through April 1957.

Heavy volumes of advertising for engineers is another indicator of a shortage—though it is too erratic to be used with much confidence. Blank and Stigler in-

clude their analyses of display advertising in the *Sunday New York Times* as one reference.

(For example, did you realize that in the fall of 1955 each Sunday issue of *The New York Times* was carrying about 15.6 sq. ft. of display advertising specifically aimed at capturing engineers?)

We can add a few additional barometers. Employment advertising in McGraw-Hill domestic publications (mostly openings for engineers) doubled between 1954 and 1955 and rose another 60% in 1956.

To compete with *The New York Times*, the *Herald Tribune* is now offering a new publication (Section 11 of a Sunday edition) "Engineers' News Supplement; A monthly digest of current developments in the field of science and engineering." All the advertising in these sections is directed at recruiting technical manpower. The September 1957 issue is one-third smaller than the June issue.

We have scanned several copies of another new publication. This one is called "The Engineers Procurement News; Read by more engineers than any other publication." Once again this is a business venture designed to thrive on a shortage of engineers. This publication is still too young to be a very accurate barometer of the demand for engineers, but its mere existence indicates that the publisher was convinced that a shortage of engineers will continue.

Enter Deutsch & Shea

As the last quarter of 1957 begins we are awaiting the arrival of another comprehensive study of this controversial subject. Deutsch & Shea, Inc., technical manpower consultants in New York, have scheduled a November publication date for "The Supply and Demand of Engineers, 1950-1960." While awaiting the arrival of the full volume we have been reading a description of the study published as a supplement to *Industrial Relations News*. Here's what the study will say.

What Is a Shortage?

"A labor shortage exists when the quantity of the labor ser-

vices that is demanded is greater than the quantity supplied at the prevailing wage. In such a circumstance the wage normally rises. Rises in engineers' pay indicate that companies are having a hard time hiring engineers at the prevailing salaries and have to raise their pay scale in order to attract and hold new engineers.

"Let's see then how starting monthly salaries (the prevailing wages) have moved for engineering graduates between 1947 and 1957:

Year	Salary/Mo.
1947	\$244
1948	250
1950	260
1951	270
1952	305
1953	325
1954	345
1955	361
1956	394
1957	433

As the table indicates, starting salaries for engineers rose more than 65% between 1950 and 1957. According to Deutsch & Shea, there is only one reasonable explanation for this sharp rise in engineer starting salaries between 1950 and 1957: an excess of demand over supply at the prevailing wage.

Here's the Clincher

After taking Stigler and Blank over the rollers for a while, Deutsch & Shea discuss what they consider to be convincing evidence that there has been a shortage of engineers ever since 1950.

Each year, several hundred representative companies have been asked by Engineers Joint Council to state the number of engineers they estimated were needed for the coming year, based on firm plans and commitments. They were also asked to estimate the number of engineers they realistically felt they could expect to hire. (Company hiring expectations come very close to the actual number of engineers they ultimately hire during a given year.)

In every year from 1951-1956 (since the EJC did not conduct a survey for 1955, figures for that year are not available) the number of engineers wanted by

companies could not be satisfied by actual hirings.

Therefore, says Deutsch & Shea, the fact is that there has been a serious shortage of engineers during the past seven years.

What of the Future?

While Stigler and Blank predict that the shortage of engineers is an economic myth that has never existed in the past and will not exist in the future, the Deutsch & Shea book will take the opposite stand:

"Companies will continue to find stiff competition in the market for engineering graduates. They will be well advised in the interests of short-range and long-range planning for their technical manpower to keep their recruitment organization taut and to cooperate with industry and education in encouraging more young people to enter the engineering profession."

Around the World

The shortage of trained engineers is not a problem unique to the United States. *Product Engineering*, a McGraw-Hill publication, has just completed a world-wide survey of the supply of engineers. Here's a quick journey around the free world:

England—Shortage is most keenly felt in the chemical engineering field, where supply trails demand by 50%. 20% more mechanical engineers are needed. Also in short supply are electrical engineers, physical chemists and metallurgists. A graduate engineer can expect \$2,100/yr. to start. By his late 30's he will get \$3,600 if dim, \$5,100 if brilliant, plus access to the wide-open ceilings in management.

Netherlands—Shortage is felt most in the civil, chemical, mechanical and electrical fields. Average annual salary of a university-diplomaed engineer is \$3,500.

Sweden—Industry's manpower shortage is estimated at 6%.

Italy—In Italy, the title of engineer is highly valued as an index of professional standing. The supply of engineers has never been great here, but a postwar surplus has developed of civil, construction and mechan-

cal engineers, causing many to take administrative and public relations jobs.

There is a serious shortage of petroleum and electronics engineers, and all branches of nuclear sciences. The average engineering salary is \$150/month.

France—The French have a serious engineering shortage. They need 14,000 more engineers right now.

Germany—There's a lag in Germany. Annual demand is 18,500; with but 13,500 graduates.

Australia—Increased industrialization and the ebbing flow of European refugees is aggravating a serious shortage.

Japan—Technical training during the war has kept the shortage of engineers from being disastrous. All firms pay beginning engineers \$28/month, gradually increasing to about the \$89/month that is paid to the average experienced engineer.

Canada—Canada, too, has its engineering manpower problems, and they are not helped by the raiding of Canadian firms and colleges by U. S. firms who offer higher salaries. The shortage has been termed alarming, causing many firms to cut back operations.

It's estimated that 2,700 engineers will be made available in Canada through graduation and immigration, but that total demand will be for 6,000. In 1954, the latest year possible for income tax breakdowns, engineering and architecture commanded an average income of \$12,000.

About Chemical Engineers

Thus we get a quick glance at the world situation for all engineers. With the space that we have left let's take a look at something closer to home. How will chemical engineers make out here in the United States?

Unfortunately the American Institute of Chemical Engineers does not sponsor an employment clearing house for its members. Therefore, we must look to the ACS clearing house for bits of information.

At the September meeting in New York those chemists and chemical engineers looking for

jobs found good hunting at ACS's employment clearing house which occupied the entire second floor of New York's Trade Show Bldg. Bradford Stanerson, assistant secretary of ACS and director of the employment center, reported that 635 persons applied for job interviews. This was 25% higher than at last year's Atlantic City meeting.

Surprisingly, Stanerson interprets the higher number of job interviews as meaning that more jobs are available—he does not credit a surplus of technical personnel. His reasoning: ACS has found a rough relationship between the number of jobs open and the number of interviews granted.

Says Stanerson, "It would seem, in the chemical industry at least, that there are more jobs to go around and that threats of employment cutbacks haven't materialized."

Launching a New Campaign

To breathe new life into its million-dollar aid-to-education program the Manufacturing Chemists Assn. is now putting its strength behind efforts to attract more young people into scientific and engineering careers. MCA predicts that "it is probable that more than 8,000 desirable jobs will go begging each year for the next decade, simply because there will not be enough trained technologists to fill them."

In reply to reports suggesting that there really is no shortage and that perhaps our children are being blackjacked into scientific careers, MCA replies "it would appear that the shortage of scientists and engineers is no mirage."

We'll Always Need Top Men

In private communications with this magazine some of the keenest observers on the engineering manpower scene today have decried attempts to disclaim the engineering shortage. According to one, "there will be a shortage for years to come for competent engineers. We'll always have a need for top men."

The American Management Assn. adds a firm yes. According to AMA, top-level manage-

ment jobs are more plentiful than ever before in today's expanding industry, but good men to fill them are even harder to find than they were in the already tight job market of five years ago. Experienced men specializing in executive recruitment now talk of a "mad market" in executives.

Two thirds of the AMA survey respondents report that they can fill top-management jobs within six months, middle jobs within three months on the average. But many companies take nine months, a year, or longer to fill both top- and middle-management jobs.

With 32% of all executives now reporting a technical background of some kind, and with the "mad market" for executives, we can expect to see more and more good engineers moving up into the ranks of management. Although this may ease the executive shortage somewhat, it aggravates the engineering shortage more.

A Waste of Engineers

Many company executives, however, are questioning the merits of forcing engineers to go into management jobs to get higher pay. The answer often proposed now is that salaries of creative specialists should rise to the point where management jobs wouldn't lure them. Many creative engineers are not suited for administrative posts by background, training nor inclination.

Several of our largest companies are now instituting plans that will allow a man to reach the top whether he chooses the technical, administrative or supervisory route.

What's the Outlook?

What is the job outlook for engineers in the chemical process industries?

Some say there is no shortage today. Some say there has never been a general shortage. Some claim that the shortage is worse than ever.

What chance will the engineer who is looking for a better spot with another company have of finding that spot? We'll stick our neck out and say "terrific!" There is now and will always be a shortage of good men.

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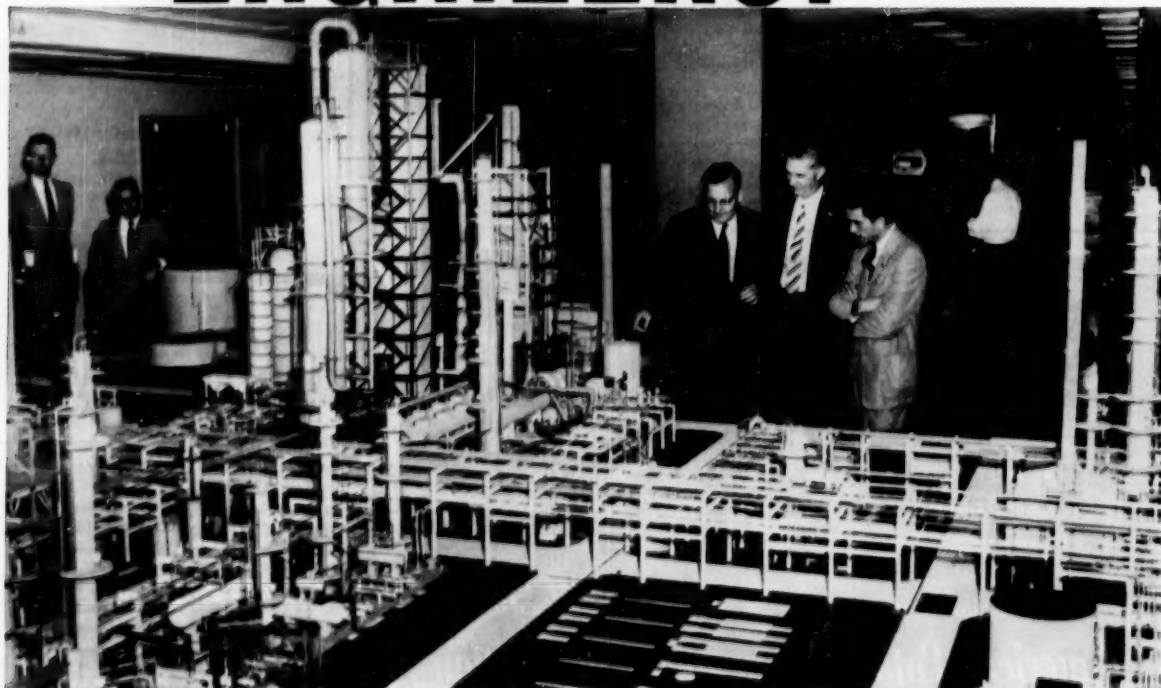
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- 1—Oliver 5'3" x 8' Steel Rotary Vac.
- 1—Elmco 18" x 12' 316 S.S. Rotary Vac.
- 2—Sweetland #12, 48 and 32 leaves.
- 2—Sweetland #10, 27 bottom drainage leaves.
- 1—Sweetland #7, 20 S.S. covered leaves.
- 3—Shriver 30" P&F, 36 chambers, iron.
- 1—Shriver, 30" P&F, 40 chambers.

CENTRIFUGALS

- 5—Bird 32" x 50" solid bowl Continuous Centrifuges 316 S.S., flame-tight, 60 HP TEFC motors, NEW 1953.
- 2—Bird 36" x 50", 18" x 28" steel, solid bowl, continuous.
- 2—Bird 24" x 38", 18" x 28", 316 S.S. Solid Bowl, continuous.
- 1—Sharples PY-14, Super-D-Canter, 304 S.S.
- 2—Bird 30" suspended, 347 S.S., perforated.
- 1—Bird 40" suspended, rubber, perforated.
- 3—Tolhurst 40", 32", 26", suspended.
- 1—AT&M 40" suspended, steel.
- 1—AT&M 36" center slung, rubber covered.
- 1—Tolhurst 32" Suspended, 304 S.S.

PULVERIZERS—CRUSHERS

- 1—Dixie #3620 non-clog Hammermill.
- 4—NEW Jeffrey Hammermills 20" x 12", 15" x 18".
- 4—Hardinge Mills, 4½' x 16", 5' x 36", 6' x 22", 10' x 48".
- 1—International 6' x 7' porcelain lined Pebble Mill, 30 HP motor.
- 4—Patterson 6' x 8', 5' x 6', 3' x 4' Mills.
- 1—National 6' x 12' Mill, Two Roll.
- 1—Kent 6' x 14' Three Roll Mill.
- 3—Raymond Air Separators 16', 6', 18".
- 2—Mikro Pulverizers, #2DH, 2TH.
- 2—Ball & Jewell No. 1, No. 0 Rotary Cutters.

SCREENS

- 3—#34 Robinson Triple Deck 30" x 104".
- 6—#42 Rotex Double Deck 40" x 84".
- 3—#421 Rotex single deck 60" x 84".
- 3—Robinson single deck 40" x 84", 304 S.S.
- 1—Patterson single deck 40" x 84", 304 S.S.
- 2—Tyler Hummer single deck 3' x 5', 3' x 10', 3' x 12' with Thermionic Units.

MIXERS

- 1—Baker Perkins #15USE, ALL STAINLESS Double Arm, jacketed, Vacuum.
- 1—Baker Perkins #15VUMM, 100 gal. jacketed, 100 HP.
- 1—Baker Perkins No. 16 TRM 150 gal. jacketed, sigma blades, Vacuum.
- 1—Baker Perkins 50 gal. jacketed, Sigma blades.
- 5—Day "Cincinnati" double arm 250 and 100 gals.
- 5—Steel Powder 50, 225 and 350 cu. ft.
- 1—10 cu. ft. "V" Blender, 304 S.S.
- 1—Eppenhach 1 HP, 304 S.S. Homo Mixer.

MISCELLANEOUS

- 3—25 Ton Freon Refrigerating Units.
- 7—Stokes DD2, DS3, D3, B2, "R" & "T" Tablet Presses.
- 8—Nash Vacuum Pumps H10, H9, H6, H5, L5, T57, #4.
- 1—Stokes 412 F Vacuum Pump, motor driven.
- 8—Williley 4" Haveg lined Centrifugal Pumps.
- 15—Chlorimet, Durimet Stainless Steel Duriron Centrifugal Pumps 1½" to 5".



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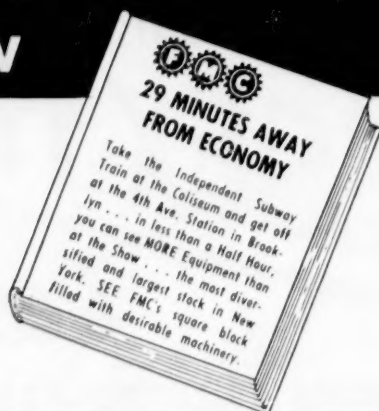
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Fitzpatrick Comminutating Mills, Model K in S/S 20 HP and Model D with 15 HP motor

Mojonnier S/S Vacuum Pans 3' x 10' and 6' x 12' with accessories

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Day Cincinnati 1000*gal. S/S Mixer; Jktd. 75 HP motor

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- 1—Baker-Perkins dbl sigma blade, 20 cu.
- 1—Baker-Perkins sigma, 33x37½x30"
- 1—Sturtevant 1½ ton, 75 cu ft Batch
- 3—Simpson Model "O" Intensive, 3' dia
- 1—Glenn 340 qt AMF Mixer, type 74-21
- 1—Banbury #3 Mixer, Complete, 75 HP
- 2—W&P jcktd Mixers, 15 gal, 75# pr
- 1—Sprout-Waldron Style B dbl ribbon

PULVERIZERS & CRUSHERS

- 1—Penna 15"x58" Roll Crusher, 350 HP
- 1—Allis-Chalmers 15"x30" "Q" Crusher
- 1—AA Traylor 42"x16" Roll Crusher
- 1—Allis-Chalmers 16"x48" Roll Crusher
- 2—Allis-Chalmers 54"x28" Roll Crusher
- 1—Allis-Chalmers Sup. McCully Crusher
- 1—Traylor 12" Bulldog Gyro Crusher
- 3—Rietz RD-12 Disintegrators, w/ motors
- 2—Rietz RD-18 Disintegrators, 75 HP
- 1—Raymond No. 1 Imp Mill, No motor
- 1—Raymond "OO" Pulverizer, Cone Separ.
- 1—Raymond Imp Mill size 34
- 1—Raymond Imp Mill, 50 HP TEFC motor

FILTERS

- 2—Oliver 3'x2' Rot. Cont. Vacuum
- 2—Oliver 3'x2' Monel Press. Precoats
- 1—Oliver 3'x4' Lead, Rot. Cont. Vacuum
- 1—Oliver 8'x10' Cont. Vacuum Precoat
- 1—Eimco 8'x8' Rot. Cont. Complete
- 1—Sweetland #2, 9 bot lvs. 4" centers
- 2—Sweetland #7, 41 lvs 2"; 20 lvs 4"
- 2—Sweetland #12, 46 lvs 3"; 30 lvs 4"
- 2—Niagara Model 510-28 stainless steel
- 2—Shriver 30"x30" Filters, 32 chambers
- 4—Sperry 36"x36" C.I. Filters

DRYERS

- 2—Link-Belt Roto-Louvre Dryers
- 1—3'x50' Rot. Dryer, 10 HP Mtr & drive
- 5—4'x30' Beaird Dryers, Mtrs & drvs

- 2—6'x45' Louisville Flame Dryers
- 2—6½'x45' Rot. Dryers, 20 HP motors
- 2—6'x50' Louisville Rot. Steam Dryers
- 2—5'x60' Louisville Rot. Steam Dryers
- 1—6½'x60' Rotary Dryer, 5 HP motor
- 3—36"x84" American dbl drum Dryers
- 1—42"x90" double drum Dryers
- 1—24"x6" Mojonier, S.S. Spray Dryer
- 1—Procter-Schwartz 8'x50' Apron Dryer

KETTLES & TANKS

- 1—40 Gal S.S. Steam jcktd, 90# W.P.
- 2—60 gal Groen Model RA S.S. Agit. New
- 3—100 gal Lee S.S. single mot. Agit.
- 1—250 gal Lee S.S. 100# Working press
- 3—150 gal S.S. jcktd Agit. Tanks ¾ HP
- 5—150 gal Mixing Tanks, 63" dia x 42"
- 1—Creamery-Pack. Pasteurizer, 200 gal
- 1—800 gal steel jcktd. Vac. Agit. 15 HP
- 1—1000 gal jcktd Mix. Tank, 100# W.P.
- 1—2500 gal S.S. Vertical Tank
- 1—11' dia x 15' Stainless Steel Tank
- 8—5'6" dia x 30' Hi-Press Tanks

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Komarek-Greaves 15 TPH Bri-
quetting Press, 6 pockets wide x
42 pockets circumference. 50 HP
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- 1—Day 14"x30" High Speed Paint Mill
- 1—Lehman 15¼"x39¾" High Speed
- 1—Williams 4 Roll High Side Whiz. Sep.
- 1—Raymond 3 Roller High Side Cone. Sep.
- 4—Micro-Pulverizers, 1-SH, 2-TH, 3-TH, 3PF
- 1—Abbe 6x5' Buhrstone Lined Pebble
- 2—Hardinge 8' Conical Ball, 150 HP
- 1—Charlotte Model 20 S.S. Colloid, 20 HP
- 1—Fitzpatrick Model K, 20 HP Motor
- 1—Penna. Size D Crusher Hammermill

**CENTRIFUGES**

- 1—Sharples PN-14 Super-D-Cantor, 15 HP
- 2—Sharples D-2 type 316 S.S. New
- 2—Sharples C-27 Super-D-Hydrators, S.S.
- 1—Delaval AAK-1 Steel, 7½ HP motor
- 1—AT&M 20" asep. Steel underdriven
- 2—AT&M asep. perf. Basket, 25 HP
- 3—Bird 48" steel perf. Basket, 30 HP
- 1—Bird 40"x60" S.S. cont. 30 HP
- 1—Bird 32"x50" S.S. type 316 cont.

AGITATORS

- 8—Lightnin Model SEV side-enter, 25 HP
- 2—Lightnin SEV 300 side-enter, 3 HP
- 8—Westbilt port. ½ HP 1750 RPM. New
- 4—Westbilt port. ½ HP ghd mtrs. New

NEW STAINLESS EQUIPMENT

- 14—Syntron Spiral Vibrating Elevators 8'6" lift
- 4—Jeffrey Vibrating Conveyors, Model #3MC-8", 9' long each
- 4—Jeffrey Vibrating Conveyors, Model #2AH, 15' long each
- 8—Jeffrey Feeder-Spreaders, Model #3AC 12"x30" w/covered decks

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- 3—Link Belt Steel Roto Louvre Dryers, Model 207-10, 310-16 and 502-3
- 1—Stainless Steel Rotary Dryer, 3' x 12', complete
- 2—Louisville Rotary Dryers, 6' x 45', complete
- 2—Columbia Engineers Rotary Dryer, 6' 4½" x 45', complete
- 2—Louisville Rotary Steam Type Dryers, 6' x 50', complete
- 1—Louisville Pilot Plant Rotary Dryer, 12" x 7'6"
- 1—Bartlett & Snow Rotary Dryer, 4'6" x 36'6"
- 8—Stokes Single Door Vacuum Shelf Dryers, 4 and 6 shelves
- 1—Stokes Stainless Steel Rotating Vacuum Dryer, 6' x 10'
- 2—Buflovak Double Drum Dryer, 42" x 120"
- 1—Stokes Double Drum Dryer, 5' x 12'

FILTERS

- 1—Oliver Horizontal 3' Pilot Plant Filter, New
- 1—Sparkler Stainless Steel Jacketed Filter, Model 1458
- 2—Impco Rotary Vacuum Filters, 5' x 4', with vari-speed motor, drive and vacuum pumps, complete
- 2—Feinc Stainless Steel Rotary String Filters, Size 5'x6'
- 2—Niagara Stainless Steel Filters, Models 510-38 and 26-60-4
- 1—Bird Continuous Centrifugal Filter, Model 24" x 38"
- 1—Sweetland #7 Filter with 20 steel leaves
- 10—Sweetland #12 Filters with 72 Stainless Steel Leaves
- 1—Feinc Stainless Steel Rotary String Filter, 3'x3' (new)

MIXERS

- 1—Baker Perkins Stainless Steel Double Arm Sigma Blade Jacketed Mixer, 30 gallons
- 1—Baker Perkins Stainless Steel Double Arm Jacketed Dispersion Blade Mixer, 100 gallons, 75 HP motor
- 1—Baker Perkins #16 TRM 150 gallon Jacketed Double Arm Sigma Blade Vacuum Mixer, 60 HP motor.
- 1—Baker Perkins #15 100 gallon Jacketed Dispersion Blade Mixer, 100 HP motor
- 1—Baker Perkins Stainless Steel Double Arm Sigma Blade Jacketed Mixer, 100 gallons
- 2—Baker Perkins Double Arm Sigma Blade Jacketed Mixers, 100 gallons
- 1—Readco Steel Jacketed Double Arm Sigma Blade Vacuum Mixer, 25 gallons capacity
- 1—National Erie Double Arm Dispersion Blade Jacketed Vacuum Mixer, 2 gals.
- 3—Robinson Type 316 Stainless Steel Sigma Type Jacketed Heavy Duty Mixers, 400 gallons capacity, 60 HP.
- 1—Stainless Steel Horizontal Ribbon Blender, 65 cu. ft.
- 1—Leader Stainless Steel Jacketed Horizontal Ribbon Blender, 40 cu. ft.
- 1—Sturtevant Stainless Steel Dustless Rotary Batch Blender #7, 70 cu. ft.
- 1—Readco Stainless Steel Horizontal Ribbon Blender, 285 cu. ft. with 30 HP motor.
- 1—Process Engineers Stainless Steel Jacketed Ribbon Blender, 30 cu. ft.
- 3—Howe 40 cu. ft. Rubber-covered Ribbon Blender, (New).
- 1—Sturtevant Dry Batch Mixer, 1½ ton

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- 1—Stainless Steel Vertical Tank, 12,000 gallons.
- 4—Stainless Steel Receivers, 1000, 1200 and 1500 gallons.
- 3—Stainless Steel Jacketed, 2000 gallon Kettles.
- 1—Stainless Steel Jacketed 400 gallon Kettle, with Turbo Agitator and Drive.
- 1—Autoclave Engineers Type 316 Stainless Steel Autoclave, 5000# pressure, 1 gal. capacity.
- 1—Pfaudler Series R Glass-lined Jacketed Kettle, 500 gallons.
- 1—Pfaudler Glass-lined Series ES Jacketed Kettle, 75 gallons.
- 1—Combustion Engineers Steel Jacketed Autoclave, 1600 gallons, 150# Jacket, 600# internal.
- 2—Vertical Rubber-lined Storage Tanks, 6000 gal. ea.
- 2—Vertical Rubber-lined Storage Tanks, 1000 gallons each (New).

MISCELLANEOUS:

- 1—AT&M Stainless Steel Link Suspended Centrifuge with 28" Perforate Basket.
- 2—Tolhurst 32" Suspended Type Centrifuge with Imperforate Basket.
- 2—Sharples 316 Stainless Steel Centrifuge, Model D-2 (New).
- 1—Vulcan Type 316 Stainless Steel Bubble Cap Column, 3' x 31', with 30 trays.
- 1—Badger Steel Bubble Cap Column, 24" x 24', with 15 trays.
- 5—Davis Engr Type 347 Stainless Steel Heat Exchangers, 200 sq. ft. each (New).
- 4—Type 317 Stainless Steel Heat Exchangers, 892 sq. ft. each, 200 PSI, ASME Code.
- 1—Stainless Steel Heat Exchanger, 524 sq. ft.
- 1—Stainless Steel Heat Exchanger, 40 sq. ft.
- 2—Combustion Engineers Water Tube Package Boilers, 200 HP, 275# pressure.
- 1—Komarek Greaves Briquetting Machine with 50 HP motor.
- 1—Ingersoll Rand Air Compressor with 300 HP motor, 1600 CFM, 100# Pressure.
- 1—Williams 4-roll Mill, complete.
- 1—Raymond 3 roll High Side Mill, complete.
- 2—Stainless Steel Williams Hammer Mills.
- 2—Mirro Pulverizers, Model #20H.

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Bird 54"x70" Steel Continuous Centrifuge

Bird 40" suspended Centrifuge perforated
Basket, bottom discharge stainless

Fletcher 30" suspended Centrifuge perforated
basket, bottom discharge stainless

Raymond 5 Roll Low Side Roller Mills

Raymond 4 Roll High Side Roller Mill

Hereshoff Furnace 5' Diam. 10 hearth

Hardinge 8"x24" Conical Ball Mill 150HP

Dixie Nonclog Hammer Mill size 3620

Jeffrey Hammer Mills 20"x12", 15"x8"

Micro Pulverizer size 2TH

Jeffrey 2 Roll Crushers 24"x30"—30"x30"

Symons Single Deck Screens 4'x8', 4'x6'

Akins 78"x36' Duplex Spiral Classifier

Sweetland Filter #12—48 leaves 3" c/c

Sweetland Filter #10—27 leaves 4" c/c

Sperry Press 36"—46 Lead P&F washing

Shriver Press 30"—18 C.I. P&F washing

Sperry Press 18"—15 Rubber P&F washing

Oliver 6'x6' Rotary Vacuum Filter

Paterson Blenders 29 cu.ft. Steel & S.S.

Mixer Oscillating S/S Clad 250 CF Jktd

Boilers 175 HP @ 275 PSI Comb. Engr. M2
Package—Oil Fired

Komarek Greaves Briquetting Press 20½"
dia.x9¼" Face Rolls

Allis Chalmers 9'x120' Rotary Kiln
¾" Shell Reducer & Motor Drive

Link Belt 5'2"x16' Roto Louvre Dryer

Link Belt 7'5"x24' Roto Louvre Dryers

Louisville 6'x50' Steam Tube Dryers

Baker Cooler 5'x20"—¼" steel shell

Swenson Crystallizers 24"x20' jacketed

Column 76"x50'4"—28 Trays 15" spacing
84 caps/tray 150 PSI @ 500° F NEW

Column 60"x42"—18 trays 36 caps/tray

Tower 54"x42' 20 trays 350 PSI

Tower 36"x60' 30 trays 250 PSI

Column 35"x44"—18 trays 21" spacing 18
caps/tray 300 PSI

Column 30"x53'6"—30 Trays 200 PSI

Tower 24"x48' 22 trays 500 PSI

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2 Pass (1) Steel (1) admiralty tubes

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2 pass, admiralty tubes

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COMPANIES: Page 511

Your company index is a complete alphabetical listing of all companies mentioned in this issue whether offering products for sale and/or included in the editorial pages. This combined index does two things: It locates advertisers for you and identifies manufacturers of all new chemicals and equipment.

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(Page 170)

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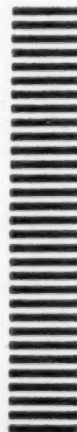
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(Page 170)

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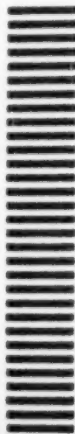
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	Wheat production	1200000	kg	2016	FAO	
Livestock	Cattle population	1500000	head	2015	FAO	
	Cattle population	1500000	head	2016	FAO	
Forestry	Forest area	1000000	ha	2015	FAO	
	Forest area	1000000	ha	2016	FAO	
Fishing	Fish catch	500000	kg	2015	FAO	
	Fish catch	500000	kg	2016	FAO	
Energy	Electricity production	1000000	kWh	2015	IEA	
	Electricity production	1000000	kWh	2016	IEA	
Manufacturing	Manufacturing output	1000000	kg	2015	FAO	
	Manufacturing output	1000000	kg	2016	FAO	
Services	Service output	1000000	kg	2015	FAO	
	Service output	1000000	kg	2016	FAO	

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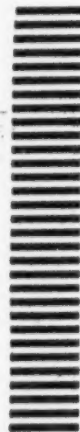
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(Page 170)

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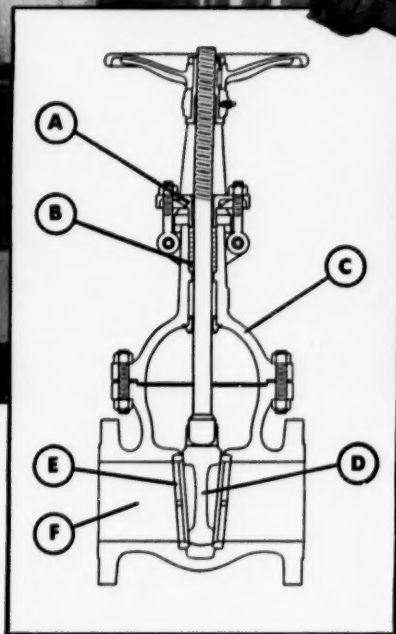
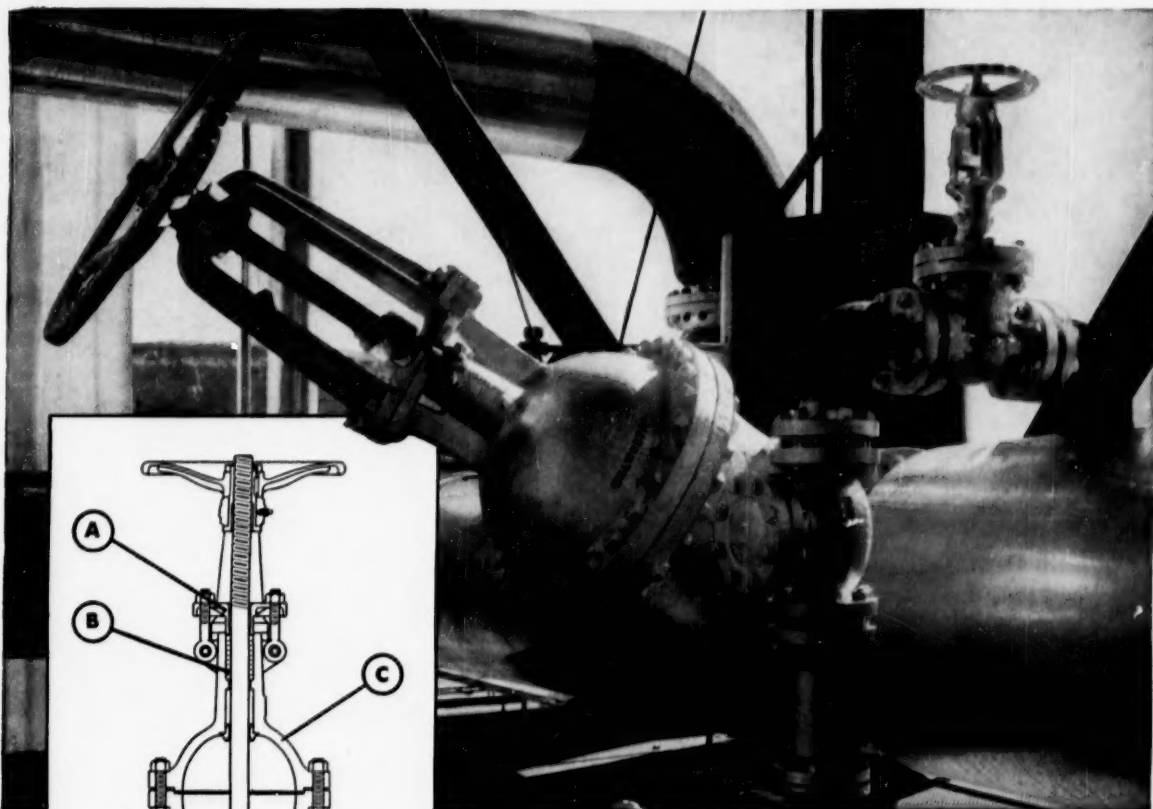


WALWORTH



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SUBSIDIARIES: **ALOYED** ALLOY STEEL PRODUCTS CO. **CONOFLOW** CORPORATION **GROVE VALVE & REGULATOR CO.**
SW SOUTHWEST FABRICATING & WELDING CO., INC. **MH** M & H VALVE & FITTINGS CO. **WALWORTH COMPANY OF CANADA, LTD.**



Walworth Series 150 and 300 CAST STEEL GATE VALVES OFFER YOU THESE FEATURES for 'round-the-plant service

(A) GLANDS: Clearances between the gland and stuffing box, and gland and stem, are such that the stem cannot be scored even if the gland is pulled down unevenly.

(B) DEEP STUFFING BOXES: More than adequate in all sizes (2" to 24") to assure tightness and maximum packing life.

(C) BONNETS AND BODIES: Engineered to exceed the requirements of all applicable codes and standards. They are tough, durable, dependable.

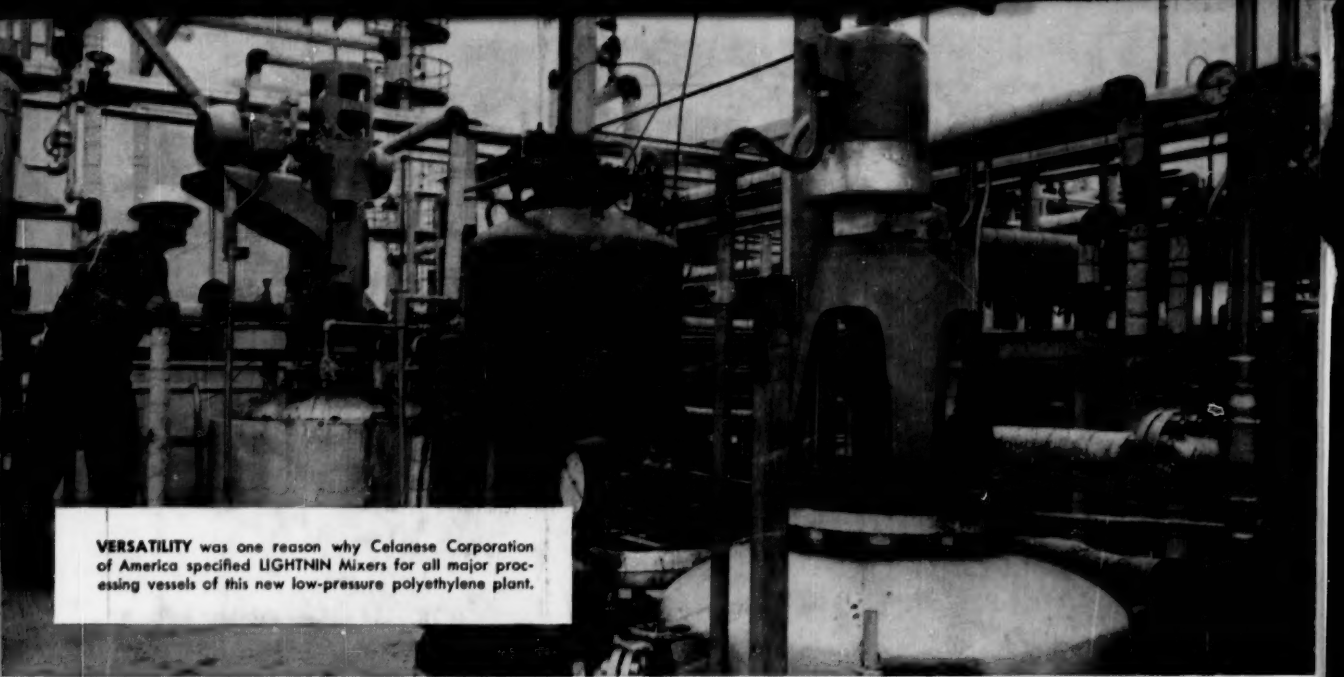
(D) INTEGRAL GUIDE RIB FACES IN BODY: Machined to insure accurate centering of the gate.

(E) STURDY SEAT RINGS: Bottom-seated so that no

recess exists at the back of the ring to cause turbulence, erosion and pressure drop.

(F) STREAMLINED PORTS: Permit unobstructed flow which results in minimum pressure drop and reduces the possibility of erosion.

Walworth Cast Steel Gate Valves can be furnished with either flanged ends or butt welding ends. Roller bearing yokes are available on the larger sizes. On valves 4 inches and larger, by-passes can be furnished. Walworth Cast Steel Gate, Globe and Check Valves from Series 150 to 2500, are available. For Series 600 and higher, we recommend Walworth Pressure Seal Cast Steel Valves. See your Walworth Distributor or write to Walworth for complete information.



VERSATILITY was one reason why Celanese Corporation of America specified LIGHTNIN Mixers for all major processing vessels of this new low-pressure polyethylene plant.

Why Celanese chose these mixers for **low-pressure polyethylene**

How can mechanical mixers help you give the touch of success to an important new process?

Celanese Corporation of America faced this question when its Plastics Division designed a plant to produce 100,000 lbs./day of Fortiflex® low-pressure polyethylene.

Needed: special answers

"We looked for a mixer supplier who could provide special features required by our process," says Lonnie C. Cunningham, chief engineer at the new Celanese plant, Pasadena, Texas. "MIXCO engineers came up with a design that solves these mixing problems for us:

"1. The mixers had to be *versatile*, since they must suspend solids in liquids over a wide range of operating temperatures. MIXCO's experience in our field and similar ones gave us confidence that their design would

stand up in actual performance.

"No stoppage"

"2. *Efficiency* of the mixers means much to us, because any stoppage in our continuous process may cause troublesome settling and hardening of material in the tanks. The durable construction of LIGHTNIN Mixers is important in maintaining uninterrupted flow.

"3. Another factor in keeping this process onstream continuously is the LIGHTNIN *mechanical seal* on some of our pressure units. This seal prevents leakage, and requires practically no maintenance. When necessary, we can change the seal quickly *without dismantling the mixer*, without loss of product and without pulling specially skilled men off other jobs.

"4. Finally, MIXCO's price was competitive—even though their bid was not the lowest."

Getting the edge

You can give *your* new process economic advantages like these by calling in MIXCO at an early stage.

You get *onstream faster* because MIXCO can build the special-purpose mixers you need, using *standard stock components*.

You know you're right because your LIGHTNIN Mixers are designed on the basis of unique fluid mixing experience and technology... and backed by a guarantee of successful results.

You trim *operating costs* with mixer features like the LIGHTNIN mechanical seal, flex-protected gearing, and many others.

To see how you can get this efficient kind of mixing for your process, talk to your LIGHTNIN Mixer representative (you'll find him listed in Chemical Engineering Catalog). Or write us direct.

Lightnin Mixers

MIXCO fluid mixing specialists

MECHANICAL SEAL on this turbine-type LIGHTNIN Mixer at Celanese can be replaced in minutes without dismantling mixer and without special skill.

WHAT MIXING OPERATIONS are important to you? You'll find a wealth of information on fluid mixing in these helpful bulletins describing LIGHTNIN Mixers:

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| <input type="checkbox"/> Portable: ½ to 3 HP (B-108) | <input type="checkbox"/> Condensed catalog showing all types (B-109) | |

Check, clip and mail with your name, title, company address to:

MIXING EQUIPMENT Co., Inc., 128-mMt. Read Blvd., Rochester 11, N.Y.

In Canada: Greyc Mixing Equipment, Ltd., 100 Miranda Ave., Toronto 10, Ont.

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